Letter to the Editor’s Desk

Another year has passed and we are trudging along the path of providing healthcare. The promises of developing technology give us a lot of hope, but the failure to utilise the available resources and knowledge make us wonder if any amount of technological advancements alone could save us the plight of suffering!

Why the pessimism you wonder? Well, our failure to follow simple measures that have a lasting impact like basic cleanliness, personal hygiene and keeping our surroundings neat show there’s a long winding road of progress to cross. Why this suddenly? Well, thankfully we have had a fall in the Dengue cases after the rampant surge that we encountered in the past few months. The number of people affected and the morbidity and mortality that resulted could have been significantly lower had people been more vigilant about the basic environmental cleanliness. Well, we are past the crescendo. But NOW is the time to start if we are to avert another repeat of what we encountered.

Start today. Stay smart. And importantly, stay clean.

Dr. B.Skanthavelan,
CRRI
Govt. Stanley Medical College
# Original Article

<table>
<thead>
<tr>
<th>PLASTIC SURGERY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>01. Management of soft tissue defects around the akle- An analysis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M sugumar, G S Radhakrishnan, E Kaushik Kumar</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PSYCHIATRY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>02. Personality profiles in self injurious behavior   - A cross sectional study</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K.Ilamaran, S.Rajarathinam , M.Malaiappan</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RADIOTHERAPY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>03. Compliance of weekly Cisplatin with concurrent Radiotherapy in locally advanced head and neck cancer -A retrospective study</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.Jeeva , K.chandralekha , P.Balasubramanium , P.Vidya</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENT</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>04. A comparative study of conventional tonsillectomy versus coblation tonsillectomy</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHYSICAL MEDICINE AND REHABILITATION</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>05. A study on interdisciplinary team work in improving activities of daily living among patients with hemiplegia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.Elamathi, P.Thirunavukkarasu, J.Geetha Kalpana, S.Suganthi, G.Vidya, J.Sankar</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPHTHALMOLOGY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>06. Prevalence of ocular morbidities in adults undergoing master health check up</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.Geetha, M.A.Aravind</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>
### ANATOMY

**07. A Study on the variations of Recurrent larynge nerve relations with inferior thyroid artery and trachea oesophageal groove during thyroidectomy**
J.Thilagavathi, V.Anandhi

### CARDIOLOGY

**08. Challenges and risk factors in prosthetic ValvularThrombosis in a tertiary care hospital, Chennai, India**
Naveen Raja R, Sampath Kumar R, Kannan K, Murali Ramamoorthy, Tony Fredrick, Yuvaraj Jayaraman, Joseph k David

**09. Challenges in managing patency following percutaneous trans luminal coronary angioplasty with bare metal stents**

### Case Report

### RADIOThERAPY

**10. Radiation Sarcoma after Breast Cancer Treatment**
T.N.Vijayasree, S.Saravanan

### PLASTIC SURGERY

**11. Basal Cell Carcinoma at a rare location - A case report**
G.S. Radhakrishnan, Asha Valantine L M.S.

### GENERAL MEDICINE

**12. Pulmonary Embolism - A rare presentation of Pulmonary Tuberculosis**
K.E.Govindarajulu, K.Dhananjayan, G.Kumravel, G.Arun

### PEDIATRIC NEUROLOGY

**13. Hypopigmented hair - A clue to diagnose a neurometabolic disorder in a child**
S.Velusamy, B.Krishna Kumar, M.Anand
Original Articles

Why do we do basic research? To learn about ourselves.

RESEARCH IS TO SEE WHAT EVERYBODY ELSE HAS SEEN, AND TO THINK WHAT NOBODY ELSE HAS THOUGHT.
INTRODUCTION:

Ankle joint is the basal joint of the body which gives the stability and mobility of the foot. Any loss of bone or joint disturbs the gait of the person which has to be corrected for the routine lifestyle. Though the orthopaedic surgeon manages skeletal and articular problems, the loss of soft tissue push the ball to the plastic surgeon’s court. Toughest of the lower limb reconstruction presents in the foot and ankle region. This is a study about the various common defects encountered around the ankle and their management with various flaps. Study conducted in our Institute from 2015-2017. Four different locations of defects around the ankle over medial & lateral malleolus, posterior heel and anterior ankle region. They were managed by different flaps of Peroneus Brevis muscle, Propeller, Lateral Calcaneal, Reverse superficial sural artery island and posterior calf fasciocutaneous flap, Microvascular free flap and cross leg flap. All flaps settled well with minimal donor site morbidity.

SUBJECTS AND METHODS:

This is a descriptive study of the patients who are involved in trauma and sustained ankle soft tissue loss treated by single surgeon in IRRH & DPS, Stanley Medical College Hospital, Chennai-1 for a period of 2 years between 2015-2017. Other external factors were excluded.

Inclusion Criteria:
All patient are due to Motor Vehicle Accidents

KEY-WORDS:
Ankle defects, Anterior ankle, Posterior Heel, Medial Malleolus, Lateral Malleolus, Ankle reconstruction, Locoregional flaps for ankle, Free flaps for ankle

KEY MESSAGES:
According to the availability of the infrastructure and personnel skill, ankle defects reconstruction can be managed in any hospital infrastructure and with available skills with proper preoperative planning.
RESULTS:

Total number of cases- 13  
Sex Male-12 Female 1  
Age group- 19 to 52 years  

SIZE OF DEFECT

<table>
<thead>
<tr>
<th>Size of Defect</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Size</td>
<td>&lt;6cm  - 5</td>
</tr>
<tr>
<td>Moderate size</td>
<td>6-10cm-5</td>
</tr>
<tr>
<td>Large</td>
<td>&gt;10cm - 3</td>
</tr>
</tbody>
</table>

All the flaps have settled well except small marginal necrosis which were managed conservatively.

TREATMENT GIVEN

- Peroneus Brevis flap – 2  
- Lateral calcaneal artery flap -1  
- Propeller flap -2  
- RSSA Flap- 3  
- Posterior calf fasciocutaneous flap-2  
- Free ALTF-2  
- Cross leg flap- 1  

DISCUSSION:

Due to high velocity motor vehicle accidents in the modern era there are increasing number of extensive lower limb injuries. Among these the challenge to plastic surgeon rests in the distal most ankle & foot reconstruction. In this study, the analysis shows majority of the victims are male who are in the working age group and bread winners of their family. For the convenience of the surgeon the defects were subdivided easily into 4 regions-medial & lateral malleolus, anterior ankle & posterior heel. On the basis of size they are classified...
into Small Size <6cm, Moderate size 6-10cm, Large size >10cm.

There are many options available in the armamentarium of the plastic surgeon such as tibialis brevis muscle flaps, lateral calcaneal artery flaps, propeller flaps for small size defects, reverse superficial sural artery island flap, posterior calf fasciocutaneous flaps for moderate sized defects, cross leg flap and microvascular free flaps for large defects which were applied appropriately and drawn the outcome aptly.

**CONCLUSION:**

Early soft tissue coverage will give better results and reduce the hospital stay and enhance early return to work as the majority of the patients are bread winners of the family. In the selection of flaps tibialis brevis muscle flaps, lateral calcaneal artery flaps, propeller flaps are suitable for small size defects. Pre operative Doppler study will guide the placement and planning of flaps. Reverse superficial sural artery island flap, posterior calf fasciocutaneous flaps are suitable for moderate sized defects. In large defects either microvascular free flaps like Antero Lateral Thigh Flap or Latissimus Dorsi or Gracilis & Distant cross leg flaps will meet the requirement. According to the availability of the infrastructure and personnel skill, ankle defects reconstruction can be managed in any hospital infrastructure and with available skills with proper preoperative planning.

**REFERENCES:**


INTRODUCTION:

WHO defines suicide act as “the injury with varying degrees of lethal intent,” and that suicide may be defined as a suicidal act with fatal outcome. Parasuicide is an impulsive act of self-injurious behavior without any prior planning or intent to die. The harm to self may be done by inflicting injury or consuming a substance. It is otherwise known as Deliberate Self-Harm (DSH). Suicide rate has been raising in younger males for the past 20 years. Learning model is also a risk factor for suicide which is available in the society, culture, institution and mass media. The relationship in the society has a significant impact in the individual, when there is a disturbance in the relation between the individual and the society, the suicidal tendency might occur.

Most suicide attempts are done by persons with abnormal Personality (Han et al, 1997). The risk factors are aggression, greater impulsivity, substance abuse, antisocial personality disorder, depression, Bipolar affective disorder and with previous suicide attempt. The genetic factors and life event stressors also had a role in the suicide attempt. Most of the suicidal attempters had a history of childhood physical abuse or sexual abuse. The commonly encountered personality disorder in suicides are borderline personality disorder, Narcissistic personality disorder and Histrionic personality disorder. Suicide in Schizotypal personality is understudied. Schizoid personality disorder has been found to be associated with depression. According to previous study results 70% of the borderline personality disorder had atleast one suicide attempt in their lifetime. Borderline personality disorder is also called Emotionally unstable personality disorder which is further divided into impulsive type and borderline type. Impulsivity is one of the feature of borderline personality and is frequently associated with alcohol or any other substance abuse, eating disorder, unprotected sex, reckless spending, reckless driving, frequent job changes, running away and self injury and other features are unstable interpersonal relations, anger outburst, sensitivity to the feeling of rejection, criticism and isolation. There is an association between substance abuse and recurrent suicide attempts (Berk et al;2007), but this finding was not confirmed by Soloff and Chiappetta (2012).

In borderline personality disorder, the time prevalence of suicide attempt is 3-10%. Men completing suicide in this disorder has been underestimated the rate being almost twice as women. Non suicidal self injurious behavior (NSSI) is one of the feature of the borderline personality disorder, characterized by self injurious behaviour without suicide attempts. The common sites for injuries are wrist, arms, thighs and legs and the uncommon sites are face, breast and abdomen. Most of these individuals with suicide attempts are having a personality disorder. This should be actively

PERSONALITY PROFILES IN SELF INJURIOUS BEHAVIOR

- A CROSS SECTIONAL STUDY

K. Ilamaran(1), S. Rajarathinam(2) M. Malaiappan(3)

Abstract

Background: The suicide and suicidal attempt is a worldwide health problem. The majority of the suicide attempts occur in the low and middle economic countries, India. Most of the suicides occur in individuals with personality problems as well as with substance uses. Aim: To determine the significance of the personality disorders in relation to suicidal behavior. Materials and methods: Total number of samples 115. The age group was 15 and above. Finally 110 consecutive samples were selected for this study. They were administered a semi-structured socio-demographic proforma, Eysenck personality questionnaire, Beck’s suicide intent scale, ICD 10 for psychiatric diagnosis. Results: In this study based on Eysenck personality questionnaire the most common personality type was Ambivert but hanging was frequently attempted in Neurotic type individuals. Introvert type was common in nonalcoholic suicide attempters whereas Extrovert type was common in suicide attempt with history of alcohol use. In this sample, the comorbid psychiatric conditions were 52%, commonly encountered illness was borderline personality disorder (28%). Conclusion: All suicide attempts should be assessed entirely to rule out the underlying psychiatric illness. Borderline personality disorder is more common in suicide attempts. Active intervention and regular follow ups are needed to prevent the further attempt. Key-words: DSH-Deliberate self harm, NSSI-Non suicidal self injury, PD-Personality disorder, EPQ- Eysenck personality questionnaire
intervened because there is a possibility of serious self injury. The further risk of suicide increases after more attempts and more unsuccessful treatments (Soloff and Chiappetta, 2012). Many of the DSH would lead not only to recurrent DSH but also to a serious suicide attempt. Personality disorders predispose to major mental illness like depression, and substance abuse. Among the antisocial personality disorders, 5% of them commit suicide. Horrocks J. et al (2003) study showed that emotionally unstable personality and impulsive type personality trait or disorder was the commonest personality disorder in self injurious behavior. Personality disorder itself increases the self injurious behavior. Life events stressors in personality disorders increases the suicidal ideations. Suicidal proneness, psychological distress have been noted in schizoid personality, schizotypal personality, borderline personality, depressive personality. Heritability contributes 40% for borderline personality disorder. Some of the studies found that there are some reduction of the areas in the brain like hippocampus, orbitofrontal cortex and amygdale in borderline personality disorder. Family history of suicide attempts, history of sexual abuse, high level of impulsivity, antisocial traits are risk factors for borderline personality disorder. (Black, Blum, Pfohl Hale 2004, Oldham 2006.

**MATERIALS AND METHODS:**

All the patients admitted for a suicidal attempt are referred to the Department of Psychiatry, Kilpauk Medical College for assessment. We took consecutive patients, who had been referred for assessment of suicide attempt, between the months of March and May, 2015. Patients who have completed the age of 15 who were willing to participate in the study by giving an informed consent (For minors informed consent was obtained from a parent as well) were included. Those who could not be assessed meaningfully due to their acute medical condition were excluded. 115 people above the age of 15 years reported for assessment during the above mentioned period. Among those 4 were medically ill, one was not willing to participate, which resulted in 110 individuals being taken up for the study. They were administered a semi-structured socio-demographic proforma. Suicidal intention was assessed by using Beck’s suicidal intent scale. The presence of psychiatric disorders and substance use disorders were diagnosed by clinical interview, based on ICD 10. The Eysenck personality questionnaire (EPQ 90) contains ninety questions, this questionnaire was given to the participants, they should answer each question by yes or no type and should not omit any question, for each question they can take not more than few seconds, finally depends upon the scoring the individual may come under any of the category like psychotism, neurotism, introverted, extroverted and ambiverted.

**RESULTS:**

<table>
<thead>
<tr>
<th>PERSONALITY</th>
<th>SUICIDE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poisoning</td>
<td>Hanging</td>
</tr>
<tr>
<td>Psychotism</td>
<td>6 (5.8%)</td>
<td>2 (28.6%)</td>
</tr>
<tr>
<td>Neurotism</td>
<td>28 (27.2%)</td>
<td>3 (42.9%)</td>
</tr>
<tr>
<td>Ambivert</td>
<td>55 (53.4%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Introvert</td>
<td>6 (5.8%)</td>
<td>1 (14.3%)</td>
</tr>
<tr>
<td>Extrovert</td>
<td>8 (7.8%)</td>
<td>1 (14.3%)</td>
</tr>
</tbody>
</table>

Table 1 shows, suicidal attempts were done by psychotism was (n=8) 5.8%, neurotism was (n=31) 27.2%, ambivert was (n=55) 53.4%, introvert was (n=7) 5.85%, extrovert was (n=9) 7.8%. Suicide by poisoning was contributed by (n=103) 93.6%, and the percentage of hangings was (n=7) 6.4%. Among all the personality types, commonly occurring personality in suicides was ambivert type, and commonly occurring personality in hanging was neurotic type.

Table 2 shows, percentage of suicide without alcohol use, in which the psychotism was - 75%, neurotism was- 74.2%, ambivert was -70.9%, introvert was -100%, extrovert was - 55.6% and with alcohol use psychotism was 25%, neurotism was 25.8%, ambivert was 29.1%, introvert was 0%, extrovert was 44.4%. Introvert type was common (100%) in Suicide attempt without alcohol use. Extrovert type was common(44.4%) in suicide attempt with alcohol intake given below
Table 2: Relation Between Alcohol and Personality Type

<table>
<thead>
<tr>
<th>EPQ(%)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Psychosis</td>
<td>Neuroticism</td>
<td>Ambivert</td>
<td>Introvert</td>
</tr>
<tr>
<td>Without Alcohol</td>
<td>6 (75)</td>
<td>23 (74.2)</td>
<td>39 (70.9)</td>
<td>7 (100)</td>
</tr>
<tr>
<td>With Alcohol</td>
<td>2 (25)</td>
<td>8 (25.8)</td>
<td>16 (29.1)</td>
<td>4 (0)</td>
</tr>
</tbody>
</table>

Table 3: Comorbid Psychiatric Illness

<table>
<thead>
<tr>
<th>Psychiatric Illness</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borderline personality disorder</td>
<td>31</td>
<td>28 %</td>
</tr>
<tr>
<td>Depression</td>
<td>19</td>
<td>17 %</td>
</tr>
<tr>
<td>Adjustment disorder</td>
<td>3</td>
<td>2.7 %</td>
</tr>
<tr>
<td>Alcohol induced psychosis</td>
<td>2</td>
<td>1.8 %</td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>1</td>
<td>0.9 %</td>
</tr>
<tr>
<td>Acute stress reaction</td>
<td>1</td>
<td>0.9 %</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>1</td>
<td>0.9 %</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>52.7 %</td>
</tr>
</tbody>
</table>

Table 3 shows the only personality disorder presented with suicide attempt was borderline personality disorder (n=31) contributing to 28%, the common psychiatric disorder was depression (n=19) contributes 17% and other disorders like adjustment disorder was (n=3) 2.7%, alcohol induced psychosis was (n=2) 1.8%, schizophrenia was (n=1) 0.9%, acute stress reaction was (n=1) 0.9%, conduct disorder was (n=1) 0.9%. So 52.7% of the participants was suffering from psychiatric illness. Recurrent suicidal attempts were present in 20% (n=22), in this study recurrent suicidal attempts were commonly present in borderline personality disorder and also in depression.

Discussion:

In our study, the personality profile was analyzed in relation to suicides. Among the participants the commonly occurring personality type was Ambivert. Introvert type was common (100%) in Suicide attempt without alcohol use. Extrovert type was common (44.4%) in suicide attempt with alcohol use. Clinical samples of depressed individuals aged 50 years and older, neuroticism has been positively associated with suicidal ideation (Duberstein et al., 2000; Heisel et al., 2006; Useda, Duberstein, Conner, & Conwell, 2004). Other studies found that older adults who attempted suicide had higher levels of neuroticism than those who completed suicide (Tsoh et al., 2005; Useda et al., 2007) but in our study the Neuroticism was slightly more in attempted hanging. In our study, the individuals with suicidal attempt without alcohol use was 72.7%, with alcohol use was 27.3%. Hawton et al.,(2005) also shown that alcohol had a major role in suicides, environmental pressures and interpersonal problem, probably force them to do. According to previous studies, the percentage of suicides in alcohol abuse were 15%, so our study result had a similar finding as with previous study. The only personality disorder associated with suicide attempts was Borderline personality disorder (28%) in our study. Horrocks. J et al (2003) study shown that emotionally unstable personality and impulsive type personality trait or disorder was the commonest personality disorder in self injurious behavior. Impulsivity is not a predictor of the suicidal attempt according to Soloff and Chiappetta,(2012) but Brodsky et al.,(2006) study found that impulsivity, hostility and aggressiveness are strongly associated with suicidal attempts. Empirical evidence suggests that approximately 30%–40% of all suicides are completed by individuals with personality disorder (PD) (Duberstein & Conwell, 1997). Gupta CS et al,(1981) study shows that persons with suicidal attempts had features of abnormal personality. Among individuals of all ages, increased suicide risk appears to be associated with borderline PD, antisocial
PD, avoidant PD, and possibly schizoid PD (Duberstein & Conwell, 1997). Heisel, Links, Conn, Van Reckum, and Flett (2007) found that older adults with narcissistic PD or narcissistic PD traits were at higher risk for suicide than patients without narcissistic PD traits. In our study, the borderline personality disorder was 28%, most of them had done suicide impulsively without any pre planning, when they had any quarrels with family members or with friends, problem in the work spot, interpersonal problem, failures in the examinations they would have attempted for suicide. Han et al. (1997), study found that 45.9% of the participants had personality disorder in his study. The borderline traits become progressively more important in patients with increasing numbers of suicide attempts. (Brodsky et al., 2006; Boisseau et al., 2012). In our study most of the borderline personality disorders were female participants and comorbid substance use was present in male participants. In our study, most of the individuals with borderline personality disorder had a history of physical abuse, substance abuse and family conflict. Family history of suicide attempts, sexual abuse, high level of impulsivity, antisocial traits were risk factor for this personality disorder (Black, Blum, Pfohl Hale 2004, Oldham 2006), in this finding our study had a similar finding with the previous study. In our study DSH scars were found in all cases of borderline personality disorder except 2 cases. Multiple occasions of DSH and recurrent suicidal attempts were more commonly present in borderline personality disorder. In our study, 20% of the participants had recurrent suicidal attempts, majority of them had borderline personality disorder . Idemalm et al (2008), found that for completed suicide, the strongest psychiatric predictors were mood disorders and schizophrenia, and the high risk was present in depressive disorder, anxiety disorder, alcohol misuse, drug misuse, and personality disorder. A case – control study by Sheikholesami et al (2008), found that repeated suicidal attempters were most frequently found in single or divorced, depressed, hopeless and impulsive and they had more psychiatric disorders especially personality disorders. Cais da Silva et al (2009), found that female sex, as a housewife and depression were more frequently involved in recurrent suicidal attempts. Reulbach and Bleich et al (2008), in this study they found that previous suicidal attempts increase the risk of suicide 30–40 times and a history of DSH was the strongest predictor of future suicidal attempts. The symptoms like anger outburst and fights were strongly associated with recurrent suicide attempts especially in borderline personality disorder.

LIMITATION:

Individual sociodemographic data was taken but not mentioned. The intent of the suicide attempts in personality disorders was elaborated but not mentioned. Being a cross sectional study further follow up could not be done.

CONCLUSION:

All suicide attempts should be assessed entirely to rule out the underlying psychiatric illness especially personality disorder. Borderline personality disorder is more common in suicide attempts. Recurrent suicidal attempts are more common in borderline personality disorder so active intervention and medications are needed. Regular follow up also needed to prevent the further attempt.

REFERENCES:

2. Black D.W,.Blum N.,Pfohl B,,&Hale N.,Suicidal behavior in borderline personality disorder;prevalence risk factors prediction and prevention journal of personality disorders 18(3),226-23


INTRODUCTION:

Patients with locally advanced head and neck squamous cell cancer (LAHNSCC) have been treated with surgery and postoperative radiotherapy. Concurrent cisplatin based chemoradiotherapy (CCRT) is the treatment of choice in LAHNSCC. The updated results of a large Meta analysis (MACH-NC) (1) confirmed an 8% increase in absolute survival rate with CCRT compared to radiation alone. However the acute toxicities and treatment interruptions with the three weekly Cisplatin were very high (2, 3). Hence the use of a lower cumulative cisplatin dose or a more fractionated cisplatin dose has therefore been suggested (4, 5, 6, 7).

In our hospital we are treating the LAHNSCC patients with Weekly cisplatin at a dose of 30 mg/m². In this retrospective study, we analyzed the compliance of the patients, acute toxicity and immediate treatment response to weekly cisplatin regime.

SUBJECTS AND METHODS:

STUDY DESIGN:

We reviewed 85 patients with non-metastatic unresectable LAHNSCC (excluding naso-pharynx and Paranasal sinuses). All of our patients were in AJCC stages III and IV and were treated with chemoradiotherapy from March 2014 to December 2017. Inclusion criteria were age over 18 - 70 years and performance status of ECOG 0 - 2, with normal hematological, liver and renal parameters. All patients were initially staged by clinical examination which includes pan endoscopy, CT scan and or MRI. Dental evaluation and management, Nasogartric tube feeding were recommended before the initiation of treatment in needed patients.

DATA COLLECTION

Data concerning disease site, clinical stage (AJCC staging, 2009), Radiotherapy and chemotherapy treatment details were collected. Toxicity was recorded according to Common Terminology Criteria of Adverse Events (CTCAE v.4.02).
CHEMORADIATION:
A standard conventional dose of 66 Gy external radiotherapy was delivered in 33 daily fractions, 5 days a week over 6.3 weeks to all of the patients by using Telecobalt machine. The radiotherapy was given to the involved primary sites and regional lymphatic area. The treatment was planned using a X ray simulator and opposing lateral two field technique was used. After the initial dose of 40 Gy had been administered, anterior field shifting was done to avoid spinal cord. At 60 Gy, the patients were assessed for the toxicity. However, most of the patients were able to complete the additional dose of 6 Gy. This 6 Gy was given as a boost to the primary involved lymph nodes. Weekly cisplatin was administered before radiotherapy at a dose 30 mg/m² on weeks 1, 2, 3, 4, 5 & 6 of radiotherapy treatment..Before administration of Cisplatin patients received I.V. hydration with 0.9 % normal saline. Prophylactic hydration and 5HT3 antagonists and dexamethasone for antiemetic prophylaxis. Chemotherapy administration was withheld if the total leukocyte count was less than 3500 mm⁻³, platelet less than 75,000 mm⁻³, hemoglobin less than 9 gm% and serum creatinine more than 1.6 mg% till recovery was observed. No dose modifications were made.

EVALUATION OF TOXICITY AND RESPONSE:
Patients were evaluated weekly for acute toxicities during treatment. And the toxicities were grade according to Common Terminology Criteria for Adverse Events (NCI-CTCAE) Version 4.02. At the end of treatment, responses were evaluated by clinical examination and/or CT or MRI studies 6 weeks after the completion of therapy using the Response Evaluation Criteria in Solid Tumors (RECIST). An overall response rate that included clearance of disease at both the primary and loco-regional nodes was also recorded. The responses were scored as complete response (CR), partial response (PR) and no response/progressive disease (NR/PD).

STATISTICAL ANALYSIS:
The data on the disease site, Tumor-Node-Metastasis (TNM) stage, RT dose/fractionation of radiotherapy and no of chemotherapy cycles were collected. Acute toxicity, treatment interruption, total duration of treatment, and missed treatments for both chemotherapy and RT were also recorded. The primary end-point of the study was the treatment compliance. Additional end point includes acute toxicity rate and loco regional response at 6 weeks. Apart from describing the distribution of different variables; chi-square test, cross-tabulation and percentage analysis was applied to the data available to determine the significance and relationship between the variables.

RESULTS:
Between April 2014 to Dec 2017, 85 patients (61 males and 24 females) met the eligibility criteria of the protocol and were analysed. The median age of the study population was 54 years (range 29-70 years). The most common site of primary disease was the oral cavity (31 patients) followed by oropharynx (24 patients), larynx (19%), and hypopharynx (16%). 47 the patients had stage IV disease and 38 patients had stage III disease. Patient and tumour Characteristics are listed in Table 1

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>NO OF PATIENTS</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>61</td>
<td>72</td>
</tr>
<tr>
<td>FEMALE</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>AGE (YEARS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEDIAN</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>RANGE</td>
<td>29-70 YRS</td>
<td></td>
</tr>
<tr>
<td>ECOG SCALE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECOG1</td>
<td>70</td>
<td>82</td>
</tr>
<tr>
<td>ECOG2</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>HABITS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALCOHOL</td>
<td>58</td>
<td>68</td>
</tr>
<tr>
<td>SMOKING</td>
<td>55</td>
<td>65</td>
</tr>
</tbody>
</table>
**Tobacco Chewing**

<table>
<thead>
<tr>
<th></th>
<th>16</th>
<th>14</th>
</tr>
</thead>
</table>

**Tumor Stage Grouping**

<table>
<thead>
<tr>
<th>Stage</th>
<th>38</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage IV</td>
<td>47</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Site**

<table>
<thead>
<tr>
<th>Site</th>
<th>31</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Cavity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oropharynx</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>Larynx</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Hypopharynx</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grade**

<table>
<thead>
<tr>
<th>Grade</th>
<th>32</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Differentiated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderately Differentiated</td>
<td>49</td>
<td>58</td>
</tr>
<tr>
<td>Poorly Differentiated</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**Compliance and Acute Toxicity**

**Radiotherapy**

To assess the compliance of this regime, pts were divided into 2 groups, that is planned for 66Gy (N=70) and planned for 60 Gy (N=15). Overall 96% (N=82) of the patients received planned doses of radiotherapy. 4% (N=3) of the patients couldn't complete the planned dose of radiotherapy. One patient could not complete RT due to acute morbidity. Two patients defaulted treatment, no reason could be found. Out of 85 patients 72% (N=61) of the patients were able to complete the radiotherapy treatment (60-66 Gy) within the stipulated period of 60 days. 24% (N=21) of the patients could not complete radiotherapy on time due to acute toxicity. Fig 1 explains the radiotherapy treatment duration of the patients.

**Chemotherapy**

78% of the patients (N=66) received 5 or more than 5 cycles of chemotherapy. 35 patients (41%) received 6 cycles of chemotherapy. Fig 2 shows the number of chemotherapy cycles received by the patients. The remaining 19 patients received less than 4 cycles due to acute morbidities like elevated renal parameters, grade 2/3 hematological toxicity, emesis, mucositis. Few patients were not getting chemotherapy due to poor general condition and nutritional status.

**Toxities**

Grade 3 neutropenia was observed in 16 patients (19%).

Fig 1: The no of patients who had received radiotherapy in the given time duration.

Fig 2: The no of cycles of chemotherapy received by the patients.
Mild-to-intermediate renal dysfunction was observed in 5 patients grade 3 vomiting was observed in 35 patients & grade 4 vomiting was observed in 16 patients. 44 patients (52%) had grade 3 mucositis and 6 patients had Grade 3 skin toxicity.

Fig 3: Shows the no of patients and grades of acute toxicities. The acute adverse events observed during treatment are summarized in table 2

**TABLE 2: INCIDENCE OF ACUTE TOXICITIES IN OUR PATIENTS**

<table>
<thead>
<tr>
<th>Acute Toxicity</th>
<th>G1 (%)</th>
<th>G2 (%)</th>
<th>G3 (%)</th>
<th>G4 (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>30(35)</td>
<td>28(33)</td>
<td>14(16)</td>
<td></td>
<td>72(84)</td>
</tr>
<tr>
<td>Anemia</td>
<td>3(4)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3(4)</td>
</tr>
<tr>
<td>Neutropenia</td>
<td>24(28)</td>
<td>16(19)</td>
<td>-</td>
<td>-</td>
<td>40(47)</td>
</tr>
<tr>
<td>Thrombocytopenia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mucositis</td>
<td>17(20)</td>
<td>23(27)</td>
<td>45(53)</td>
<td>-</td>
<td>85(100)</td>
</tr>
<tr>
<td>Nausea/vomiting</td>
<td>15(18)</td>
<td>35(41)</td>
<td>16(19)</td>
<td>-</td>
<td>66(78)</td>
</tr>
<tr>
<td>Nephrotoxicity</td>
<td>30(35)</td>
<td>13(15)</td>
<td>7(8)</td>
<td>-</td>
<td>50(58)</td>
</tr>
<tr>
<td>Dysphagia</td>
<td>15(18)</td>
<td>27(32)</td>
<td>38(45)</td>
<td>-</td>
<td>80(95)</td>
</tr>
</tbody>
</table>

**Immediate response:**
Overall response to therapy was analysed in 85 patients. (100%) this included a complete response patients 62 (73 %) and partial response in 23 patients (27 %). Of the 23 patients with residual disease 3 patients 13 (15%) had residual disease at the primary site, 10 (12%) patient had residual disease at nodal site. Patients with residual disease were followed by salvage surgery / neck dissection or palliative chemotherapy. Fig 4 elucidates stage grouping versus clinical response.

**DISCUSSION:**
When Cisplatin based concurrent chemoradiation is the standard of care in unresectable locally advanced head and neck cancer. The benefit of concomitant chemotherapy along with radiotherapy compared to radiotherapy was confirmed by many phase III randomized trials and MACH-NC analysis (1, 2, 3). An updated meta analysis of MACH-NC collaborative group results showed an 6.5% survival gain at 5 years with platinum based regimes(1). 3 weekly cisplatin regime was the gold standard and used in majority of randomized trials. (1, 2,3).

However, only 60% of patients in clinical trial setting are able to receive all the three planned doses of three-weekly cisplatin due to unacceptably high systemic and mucosal toxicities [2,8]. However the enhanced acute toxicity affects the patients compliance which may compromise on the efficacy of the treatment. Majority of the patients need frequent hospitalization for intensive supportive care with NG tubes, IV hydration and narcotic analgesics that may be a challenge for the health care system in developing countries with limited manpower and resources (9, 10). Due to this toxicity and low compliance there is a trend toward weekly cisplatin in LAHNC. But there are no large randomized trials to support this regime at present. All published trials are only phase II with less no of patients and small retrospective trials. Studies evaluate the role of weekly cisplatin in the range of 30-
Several Randomized studies have tried various regimens of Cisplatin such as 5–7 mg/m²/day, 5 days a week during a 7-week course of fractionated radiotherapy, 5 doses of 20 mg/m² for 5 consecutive days, or 20 mg/m² on 5 days of weeks 1 and 5 during weeks 1, 4, and 7 of radiotherapy or 4 doses of 25 mg/m² for 4 consecutive days during weeks 1, 4, and 7 of radiotherapy, 5 days a week during a 7-week course of fractionated radiotherapy. The weekly cisplatin is as efficacious as 3 weekly cisplatin and is proved in locally advanced cervical and nasopharyngeal cancer randomized trials. 

In a phase II trial by Sharma et al (16) compared concurrent chemoradiation with weekly cisplatin 40mg/m² with radiotherapy alone. The total of patients were 77 the data reported that >90% of patients were able to complete the treatment with interruption in 28% in the CRT arm. Complete response of 80.5% of the patients in CRT arm against 67.1% in the radiotherapy arm (P=0.04). However the CRT arm associated with frequent treatment interruptions (28.9%) and more hospitalization (40.8%) vs. 20%. The incidence of grade 3 and 4 toxicity was 40% in the chemoradiation group versus 20% in the radiotherapy alone group (p=0.015) (18).

In another indirect comparison, Ho and colleagues (17), compared the differences in dose intensity, delays, and toxicity between concurrent 3-weekly (80–100 mg/m²) and weekly (40 mg/m²) cisplatin-based definitive CRT in 51 patients with advanced SCCHN. More patients received a higher cumulative dose of at least 240 mg/m² in the weekly arm as compared to the 3-weekly arm (p=0.04). The 3-weekly regimen was associated with more delays (41% vs 29%) and omissions of chemotherapy (17.4% vs 5.6%) resulting in lesser patients achieving cumulative doses beyond 200 mg/m², potentially lowering dose-intensity.

A trial conducted by Uygun et al (18) compared weekly cisplatin and 3 weekly cisplatin along with concurrent chemoradiation in 52 patients showed statistically similar response and adverse events. Another randomized study comparing daily (6 mg/m²), weekly (40 mg/m²), and three-weekly (100 mg/m²) schedule of cisplatin with conventionally fractionated radiotherapy (19) did not find any significant difference in the efficacy of the regimens (similar response rates and loco-regional control), but reported varying degrees of mucosal, renal and hematologic toxicity. The most popular schedule of concurrent cisplatin for SCCCHN outside the context of clinical trials is not the three-weekly regimen but a weekly schedule of cisplatin in the dose range of 30–40 mg/m².

In our analysis, more than 90% of the patients were able to complete the treatment within the stipulated time of 60 days. 78% of the patients were able to complete 5 or >5 cycles of concurrent weekly Cisplatin. The complete response was observed in 62 patients (73%) and partial response in 23 patients (27%). Nearly, 55% of the patients experienced grade 3 or higher acute radiation morbidities.

**CONCLUSION:**

Our study showed that Concurrent chemoradiotherapy using weekly cisplatin at 30 mg/m² per week is an effective, safe alternate regimen in LAHNSCC. The compliance to therapy is high with less treatment interruptions. It also compares well with the available literature, however large randomized trial is required to confirm the efficacy of weekly cisplatin.

**CONFLICTS OF INTEREST:**

No conflict of interest has been declared by the author(s).

**ACKNOWLEDGEMENTS:**

I express my profound gratitude to Prof. P. Balasubramanium, Professor and Head, Department of Radiation Oncology, Tamilnadu Govt multisuper speciality Hospital, Omantthurar, Chennai-02 and the Radiation Physicist of our department Mr. Thirumavalavan, for their encouragement and guidance throughout the study and the prompt help rendered whenever approached.

**REFERENCES:**

INTRODUCTION:

The Tonsillectomy is one of the oldest and most commonly performed otolaryngological procedure worldwide. With the advent of newer antimicrobial therapy and surgical techniques preoperative and postoperative complications were reduced to minimal. Of all the intraoperative and postoperative complications, postoperative pain, time needed to regain the normal diet and activity and postoperative hemorrhage were gathered and compared between two groups containing 25 patients in each group, conventional group I and coblation group II.

RESULTS: Mean range for intra operative time was 27.52(± .62) for conventional and 18.44(± .70) for the coblation with the T stat of 9.694. Among the intraoperative blood loss, for conventional tonsillectomy it was in the range of 35.5 to 62.5 with mean of 46.27 and for coblation tonsillectomy it was in the range of 20 to 39 with the mean of 27.17. 20 patients in group I had moderate pain and 15 patients in group II encountered moderate pain with chi square value of 12.38 with a P value of 0.002

CONCLUSIONS: This study revealed a significantly less intraoperative or postoperative complications and morbidity in coblation tonsillectomy in comparison with traditional method. Coblation was associated with less pain and quick return to normal diet and daily activity. Coblation method was found to be SUPERIOR to conventional method using systemic criteria based prospective analysis

Key-words: Tonsillectomy, Coblation tonsillectomy, Radiofrequency, Conventional tonsillectomy.

MATERIALS AND METHODS:

Study design:

It is a prospective cohort study analyzing 50 patients who were divided into 2 groups each group comprising of 25 patients.
Group I were analysed with regards to conventional tonsillectomy with group II who underwent coblation tonsillectomy based on per operative bleeding, per operative time ,post operative pain, and return to normalcy. Every patients were admitted on day1 ,under went baic blood investigations including complete blood count , renal function test, bleeding time, clotting time, urine routine, X-ray soft tissue skull ,Diagnostic nasal endoscopy to rule out adenoids, HIV, VDRL and With prior pre operative anesthetic assessment. Every patients on the day of operation were given pre operative antibiotics and underwent surgery under General anaesthesia. On the table per operative time and amount of bleeding were noted.post operatively all patients were put under I.V. antibiotics on 1st day and oral antibiotics from next day for subsequent 3 days. Post operative pain (visual analogue scale), early diet intake, and return to normalcy were recorded into statistical data.

**Inclusion criteria:**
1) Chronic tonsillitis
2) Recurrent tonsillitis not responding to medical management.
3) Patients in the age group of 12-50 years.

**Exclusion criteria:**
1) Acute infections
2) Aneurysm of carotid artery
3) Adenoid hypertrophy
4) Bleeding and clotting disorders
5) Cervical spine pathology
6) Chronic sinusitis
7) Diphtheritic tonsillitis
8) Patients on anticoagulant therapy and oral contraceptives
9) Uncontrolled hypertension, diabetes mellitus and bronchial asthma
10) Severe malnutrition

**RESULTS:**

**TABLE I: AGE GROUP DISTRIBUTION**

<table>
<thead>
<tr>
<th>AGE (YEARS)</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 – 20</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>21 – 30</td>
<td>12</td>
<td>24</td>
</tr>
</tbody>
</table>

Among the age distribution 35 patients were under 20years of age contributing to 70% of total study group. The next highest age group was between 21 to 30 years contributing 24% of the total study group.

**TABLE II: GENDER WISE DISTRIBUTION**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>33</td>
<td>66</td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

This gender wise distribution shows the common occurrence of chronic tonsillitis being more in males than females.

**Table III: STUDY SUBJECTS DISTRIBUTION ACCORDING TO SURGERY**

<table>
<thead>
<tr>
<th>SURGERY</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONVENTIONAL</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>COABALATION</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>TOTAL</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

According to surgery wise distribution, 50% were under conventional group and 50%were under coblation group so that 25 cases were in group i, under conventional tonsillectomy and 25 cases were grouped in group ii, under coblation tonsillectomy. This picture shows equal distribution of patients in GROUP I AND GROUP II.

**INTRAOPERATIVE TIME:**

Among the intra operative time between conventional and coblation tonsillectomy the range was between 20 to 35 minutes in the group I and 14to 27 minutes in the group II Mean range was 27.52(± .62) for conventional and 18. 44(± .70) for the coblation with the T stat of 9.694
**SURGERY WISE DISTRIBUTION - AGE GROUP**

**TABLE IV: AGE WISE DISTRIBUTION ACCORDING TO SURGERY**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Conventional method (%)</th>
<th>Coablation method (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 – 20</td>
<td>18 (72)</td>
<td>17 (68)</td>
</tr>
<tr>
<td>21 – 30</td>
<td>4 (16)</td>
<td>8 (32)</td>
</tr>
<tr>
<td>31 – 40</td>
<td>1 (4)</td>
<td>-</td>
</tr>
<tr>
<td>41 – 50</td>
<td>2 (8)</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>25 (100)</td>
<td>25 (100)</td>
</tr>
</tbody>
</table>

**TABLE V: GENDER WISE DISTRIBUTION ACCORDING TO SURGERY**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Conventional method (%)</th>
<th>Coablation method (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>19(76)</td>
<td>14(56)</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>25 (100)</td>
<td>25 (100)</td>
</tr>
</tbody>
</table>

**TABLE VI: INTRAOPERATIVE TIME FOR CONVENTIONAL TONSILLECTOMY VERSUS COBLATION TONSILLECTOMY**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Range (mins)</th>
<th>Mean (SE)</th>
<th>T stat</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>20 – 35</td>
<td>27.52 (+0.62)</td>
<td>9.694</td>
<td>0.0001</td>
</tr>
<tr>
<td>Coablation</td>
<td>14 – 27</td>
<td>18.44 (+0.70)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INTRA OPERATIVE BLOOD LOSS:**

Among the intra operative blood loss, for conventional tonsillectomy it was in the range of 35.5 to 62.5 with mean of 46.27 and for coablation tonsillectomy it was in the range of 20 to 39 with the mean of 27.17. The assessment of blood loss calculated by number of cotton balls and the quantity of saline used.

**Total blood collected in cotton balls (A) = No. of cotton balls used X 2.5 ml (approx. blood in each cotton ball).**

**Total blood in suction bottle (B) = amount of fluid collected in suction bottle – total amount of saline used.**

**Total blood loss = A+B.**

**TABLE VII: INTRA OPERATIVE ESTIMATED BLOOD LOSS FOR CONVENTIONAL TONSILLECTOMY VERSUS COBLATION TONSILLECTOMY**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Range (ml)</th>
<th>Mean (SE)</th>
<th>T stat</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>35.5 – 62.5</td>
<td>46.27 (+7.6)</td>
<td>10.653</td>
<td>0.0001</td>
</tr>
<tr>
<td>Coablation</td>
<td>20 – 39</td>
<td>27.17 (+4.8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Occurrence of Complications:**

Commonest complications encountered during the surgery were per operative hemorrhage, including reactionary hemorrhage, post operative pain, delay in swallowing, post operative fever, tonsil remnants etc. In our study we encountered seven complications one patient in group I had reactionary hemorrhage which was controlled with adequate care with ligation of bleeding point using Bipolar cauterization under general anesthesia.

**TABLE VIII: OCCURRENCE OF COMPLICATION IN THE STUDY GROUPS**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>Conventional</td>
<td>4</td>
</tr>
<tr>
<td>Coablation</td>
<td>3</td>
</tr>
</tbody>
</table>
Complications | Conventional | Coblation
---|---|---
Persistent Pain | 1 | 3
Reactionary Hemorrhage | 1 | -
Remnant tonsil | 2 | -
Total | 4 | 3

**SEVERITY OF PAIN**

Severity of pain was assessed using visual analogue scale (VAS) and the results showed the following. The visual analogue score was a objective score using patients words categorizing in to mild (0-4), moderate (5-8) and severe (9,10).

<table>
<thead>
<tr>
<th>1st Post operative day</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
</tr>
<tr>
<td>Mild</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Severe</td>
</tr>
</tbody>
</table>

In the first post operative period nine patients in the group II encountered mild pain and nil in group I. 20 patients in group I had moderate pain and 15 patients in group II encountered moderate pain with chi square value of 12.38 with a P value of 0.002. 5 patients in group I had severe pain and only one patient had severe pain on day one in the group II

<table>
<thead>
<tr>
<th>2nd Post operative day</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
</tr>
<tr>
<td>Mild</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Severe</td>
</tr>
</tbody>
</table>

The above results shows most of the patients had only mild pain during second post operative pain and only nine of them encountered severe pain on the 2 post operative day and none had severe pain.

<table>
<thead>
<tr>
<th>3rd Post operative day</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
</tr>
<tr>
<td>Mild</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Severe</td>
</tr>
</tbody>
</table>

This above results shows moderate to severe pain in the group II than with group I indicating better tolerance and superiority of coblation over conventional method.

**TABLE IX: SEVERITY OF PAIN IN THE POSTOPERATIVE PERIOD AMONG THE STUDY GROUPS**

| TABLE X: CHANGE IN SEVERITY OF PAIN IN POST OPERATIVE DAYS IN CONVENTIONAL PROCEDURE GROUP |
|---|---|---|---|---|
| VAS | 1st POD | 3rd POD | Chi square | P value |
| Mild | 0 | 4 | | |
| Moderate | 20 | 20 | 6.67 | 0.035 |
| Severe | 5 | 1 | | |

**TABLE XI: CHANGE IN SEVERITY OF PAIN IN POST OPERATIVE DAYS IN COABALATIVE PROCEDURE GROUP**

<table>
<thead>
<tr>
<th>VAS</th>
<th>1st POD</th>
<th>3rd POD</th>
<th>Chi square</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>9</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>15</td>
<td>0</td>
<td>23.53</td>
<td>0.0001</td>
</tr>
<tr>
<td>Severe</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION:

Coblation tonsillectomy is still considered to be one of the newer techniques among tonsillectomy procedures and noted to be the bridge between cold and hot methods. This study was performed to compare the intraoperative efficiency. Though the age group and gender groups are almost similar in both groups the results compared with records to the following criteria showed variable yielding.

Among the complications compared, except for the postoperative pain coblation method seems superior in all aspects with regards to per operative time, intraoperative bleeding, early swallowing, lesser stay in the hospital and less complication. The only complication encountered in this study with coblation is postoperative pain in the 3rd and subsequent postoperative days. The reason for which may be due to surgical fibrosis with coblation method. But the mean average pain score was less in group II in our study. With the other criteria’s, coblation definitely had an edge over conventional tonsillectomy.

In our study group II (coblation) shows better tonsilar fossa healing, lesser operative time, less amount of preoperative bleeding, and early return of normal activities. Comparative pain by visual analogue scale, coblation was superior to conventional method. But study variation depends on tolerance of the individual. With Postoperative early return of normal activities, coblation is superior to conventional method.

In the study by Silva et al-2011, 80 patients were included and divided into equal groups for whom the average intraoperative time was 30 min for conventional and 15 min for coblation and postoperative bleeding was 14 ml for conventional and 11 ml for conventional in comparison with our study mean average time duration almost equal but the postoperative bleeding in both groups was found to be lesser. In the study Lee et al-2008, 48 patients were included in the study group the mean average intraoperative time was 25 min for the group I and 17.9 for group II which was almost comparable with our study the average intraoperative bleeding was 27 ml for group I and 20 ml for group II which was found to be lesser than our study.

In the study Sezen et al-2008, 125 patients were included in the group with a mean average intraoperative time of 36.4 min for group I and 21.5 min for group II which on comparison our study was found to be better average intraoperative bleeding was 32.4 ml for group I and 17.28 ml for group II which was comparable with our study. In the study by Karatzius et al-2006, 81 patients were included with mean operative time of 22.67 min in group I vs 22.23 min in group II which is comparable with our study the mean intraoperative bleeding of 16 ml in the conventional method and no measurable bleeding in group II which was better than in our study. In the study by Stavroulaki et al-2007, 32 patients were included with mean operative time of 21 min in group I and 14.5 min in group II which was comparable with our study the mean intraoperative bleeding of 58 ml in group I and 9.4 ml in group II which was better than in our study. So on comparing the above study with our study showed better peroperative bleeding, intraoperative bleeding, return to normalcy and the average pain by visual analogue score which is an objective score was found to be superior in coblation method than conventional method.

CONCLUSION:

With the above study following above conclusion were obtained. Preoperative time consumption and intraoperative bleeding were very minimal with coblation method than with the conventional method.

• Postoperatively early swallowing and lesser hospital stay were other advantages of coblation method over conventional method.

• Postoperative pain using symptomatic and visual analogue score were equal with the coblation and conventional method of tonsillectomy, but the average postoperative pain by visual analogue score was lesser in coblation method.

• Cost effectiveness, surgical skills and microscopic settings were three main disadvantages with the coblation method.

• Coblation method was found to be superior to conventional method using systemic criteria based prospective analysis.

REFERENCES:

5. Divi V, Benninger M. Postoperative tonsillectomy bleed:


INTRODUCTION:

Cerebrovascular Accidents (CVA) affects patient’s motor function. In India the prevalence of CVA is high (18% to 32%) compared with other high income countries. Individuals who sustain CVA are especially challenged in their daily activities (self-care, sphincter control, mobility, communication, cognitive functions) as they have difficulty in adapting their environmental constraints. CVA is the major and most frequent cause of hemiplegia and may affect Activities of daily living (ADL). Roughly about two thirds of all the stroke patients have hemiplegia, leading to reduced functional outcome. Effective team working in Physical Medicine and Rehabilitation produces better outcome in stroke patients. Rehabilitation team includes Physiatrist (PMR), Physiotherapists, Occupational therapists and personnel Qualified in Prosthetics and Orthotics. Physical Medicine and Rehabilitation Department plays a crucial role in improving the functional abilities that are necessary for Activities of Daily Living. There is limited published evidence in multi professional team work concerning functional outcome of stroke patients from Indian perspective.

AIM AND OBJECTIVES:

The objectives of the study are
1. To identify the synergy patterns in patients with hemiplegia.
2. To identify the functional deficits in ADL of patients with hemiplegia.
3. To compare the motor recovery and Activities of Daily Living after intervention.
4. To study the effectiveness of interdisciplinary rehabilitation team work.

Abstract

The aim of the study is to prove the effectiveness of interdisciplinary team work of Physical Medicine and Rehabilitation in improving Activities of Daily living in patients with Hemiplegia. The study was conducted in Department of Physical Medicine and Rehabilitation in Government Kilpauk Medical College and Hospital, Chennai, Tamilnadu. Cross sectional Quasi Experimental Study Design with 75 samples clinically defined as CVA with hemiplegia were chosen for the study. Outcome measures like MoCA, Brunnstrom’s stages of relative recovery of stroke and Modified Barthel Index were used in this study. The results indicated that there is significant improvement in motor recovery and Activities of Daily living among patients with Hemiplegia. Though there are residual impairments in motor recovery the patients achieve significant Independence in their Activities of Daily living through effective rehabilitation of Interdisciplinary Team of Physical Medicine and Rehabilitation. KEYWORDS: Interdisciplinary team, Physical Medicine and Rehabilitation, Activities of Daily Living, Hemiplegia.
SUBJECTS AND METHODS:

The study was undertaken in the Department of Physical Medicine and Rehabilitation, Government Kilpauk Medical College and Hospital, Chennai, Tamil Nadu. Patients were eligible for inclusion if they had an episode of stroke with right or left hemiplegia including motor, perceptual with normal or mild cognitive impairments (as per MoCA) resulting in limitation of Activities of Daily Living. Patients with associated psychiatric disorders, neurological deficits were excluded from the study.

DESIGN, SAMPLE SIZE AND SAMPLING METHOD:

A cross-sectional Quasi Experimental Study design was used for the sample size of n=75 selected on the basis of non-probability convenient sampling. The primary outcome measures were MoCA(7) and Brunnstrom’s Stages of Recovery of Stroke (6). The sample was recruited on the basis of normal to mild cognitive impairment based on the MoCA scores and between 1 to 7 of Brunnstrom’s Stages of Relative recovery of Stroke. Modified Barthel Index was used to evaluate the Activities of Daily living of stroke patients.

OUTCOME MEASURES:

Montreal Cognitive Assessment Scale (MoCA):

The Montreal Cognitive Assessment (MoCA) is a standardized rapid screening instrument for cognitive dysfunction. It assesses different cognitive domains: attention and concentration, executive functions, memory, language, visuo-constructive skills, conceptual thinking, calculations, and orientation. Time to administer the MoCA is approximately 10 minutes. The total possible score is 30 points; a score of 26 or above is considered normal. This scale was used as a screening tool.

Brunnstrom’s Stage of Recovery of Stroke:

The sequence of Motor recovery was followed after CVA. The sequence of recovery has seven stages. These include limb synergies, gross patterns of limb flexion and extension that are primitive spinal cord patterns and primitive reflexes. The six sets of scores yielded correlation coefficient with a range of 0.74 to 0.98 and a highly significant Kendall’s coefficients of concordance.

Modified Barthel Index:

This Modified Barthel index measures the extent to which somebody can function independently and has mobility in their activities of daily living (ADL) i.e. feeding, bathing, grooming, dressing, bowel control, bladder control, toileting, chair transfer, ambulation and stair climbing. The index also indicates the need for assistance in care. The Modified Barthel Index (MBI) is a widely used measure of ADL. The internal consistency of the MBI was excellent, with a Cronbach’s alpha of 0.94 (Cronbach’s alpha of the FIM ranged from 0.89-0.96). The MBI scores at 14, 30 and 90 days post-stroke demonstrated adequate correlation with FAI scores at 180 days post-stroke, (r=0.59, 0.66, 0.63 respectively).

INTERVENTION:

The study was carried out in Physical Medicine and Rehabilitation Department Outpatient unit. The interdisciplinary team of Physical Medicine and Rehabilitation works on overall rehabilitation goals determining severity, degree of impairments, expected outcome, functional status and patient/care giver attributes or needs. The study was preceded by interdisciplinary training sessions. Patients were assessed comprehensively and an individualized rehabilitation program was designed by Physiatrist (PMR) to the members of interdisciplinary team. Successive 30 treatment sessions for individual patients including medical management, physiotherapy, occupational therapy and orthotics were provided. Initial medical management provided by PMR physician – diagnosing the underlying pathology and impairments, medical assessment and treatment, setting up treatment and rehabilitation plan, prescription of pharmacological and non-pharmacological treatments. Review after each of 10 sessions to the total of 3 was conducted by the Physiatrist(PMR); the progress of patient’s functional outcome after every 10 sessions was discussed by the interdisciplinary team for further treatment progress in the direction of remedial therapy or compensatory rehabilitation therapy and preparing the patient to adapt with his functional impairment. Physiotherapy management includes detailed assessment of posture and movement problems, administering physical treatment including physical agent modalities and exercise to restore movement and alleviate pain. Occupational therapy management includes assessing the impact of physical, perceptual and cognitive problems on activities of daily living, providing expertise on strategies that can be used by the patient and family and environmental adaptations to facilitate independence. Orthotic management includes progressively decreasing spasticity and improving function by providing splints.
RESULTS:

1. DESCRIPTIVE STATISTICS OF AGE AND GENDER OF PATIENTS:

TABLE 1.1 SUMMARY STATISTICS OF AGE

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>48.85</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>14.31</td>
<td></td>
</tr>
</tbody>
</table>

The average age of a patient is 48.85 years with the standard deviation of 14.31 years, while the patients in this sample are of age between 12 and 87 years.

TABLE 1.2 SUMMARY STATISTICS OF GENDER

<table>
<thead>
<tr>
<th>GENDER</th>
<th>COUNT</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>64</td>
<td>85%</td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>15%</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>100%</td>
</tr>
</tbody>
</table>

The majority of the patients involved in this study are male (85%) while only 15% are female.

TABLE 1.3 SUMMARY STATISTICS OF AGE BY GENDER

Summary Statistics of Age by Gender

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>Max</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>FEMALE</td>
<td>23</td>
<td>87</td>
<td>58.18</td>
</tr>
<tr>
<td>MALE</td>
<td>12</td>
<td>83</td>
<td>47.25</td>
</tr>
</tbody>
</table>

Average age of a male patient is 47.25 years and that of a female patient is 58.18 years, indicating that female patients are older than male patients in this sample.

2. DESCRIPTIVE STATISTICS OF MODIFIED BAR-THEL INDEX VARIABLES

Figure 2.1 The mean score of CHAIR/BED TRANSFER has been increased from 8.21 to 12.05 after rehabilitation.

Figure 2.2 The mean score of AMBULATION has been increased from 7.76 to 11.17.

Figure 2.3 The mean score of STAIR CLIMBING has been increased from 5.11 to 6.97.
### TABLE 2.1 THE SUMMARY STATISTICS AND BAR CHART FOR THE MEAN SCORES OF MODIFIED BARTHEL INDEX VARIABLES

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre Test</th>
<th>Post Test</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td>Mean</td>
<td>SD</td>
<td>Minimum</td>
<td>Maximum</td>
<td>Mean</td>
<td>SD</td>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td>CHAIR/ BED TRANSFER</td>
<td>3</td>
<td>15</td>
<td>8.21</td>
<td>2.79</td>
<td>8</td>
<td>15</td>
<td>12.05</td>
<td>2.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMBULATION</td>
<td>3</td>
<td>15</td>
<td>7.76</td>
<td>3.10</td>
<td>8</td>
<td>15</td>
<td>11.17</td>
<td>1.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAIR CLIMBING</td>
<td>2</td>
<td>10</td>
<td>5.11</td>
<td>2.46</td>
<td>2</td>
<td>10</td>
<td>6.97</td>
<td>2.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOILET TRANSFER</td>
<td>2</td>
<td>10</td>
<td>6.25</td>
<td>2.27</td>
<td>5</td>
<td>10</td>
<td>8.61</td>
<td>1.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOWEL CONTROL</td>
<td>10</td>
<td>10</td>
<td>10.00</td>
<td>0.00</td>
<td>10</td>
<td>10</td>
<td>10.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLADDER CONTROL</td>
<td>10</td>
<td>10</td>
<td>10.00</td>
<td>0.00</td>
<td>10</td>
<td>10</td>
<td>10.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BATHING</td>
<td>3</td>
<td>4</td>
<td>3.48</td>
<td>0.50</td>
<td>4</td>
<td>8</td>
<td>4.64</td>
<td>0.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRESSING</td>
<td>2</td>
<td>8</td>
<td>5.93</td>
<td>2.18</td>
<td>4</td>
<td>10</td>
<td>9.31</td>
<td>1.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERSONAL HYGIENE</td>
<td>1</td>
<td>5</td>
<td>3.35</td>
<td>0.91</td>
<td>4</td>
<td>5</td>
<td>4.47</td>
<td>0.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FEEDING</td>
<td>2</td>
<td>10</td>
<td>6.76</td>
<td>3.31</td>
<td>8</td>
<td>10</td>
<td>9.73</td>
<td>0.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2.4 The mean score of TOILET TRANSFER has been increased from 6.25 to 8.61.

Figure 2.5 The mean score of BATHING has been increased from 3.48 to 4.64.

Figure 2.6 The mean score of DRESSING has been increased from 5.93 to 9.31.

Figure 2.7 The mean score of PERSONAL HYGIENE (GROOMING) has been increased from 3.35 to 4.47.
3. Inferential Statistics to Test Whether Interdisciplinary Rehabilitation Team is Effective in Improving Activities of Daily Living with Modified Barthel Index.

Table 3.1 describes the significant value of Pre and Post Assessment of Modified Barthel Index.

<table>
<thead>
<tr>
<th>T-Test: Paired Two Sample for Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>MEAN</td>
</tr>
<tr>
<td>SD</td>
</tr>
</tbody>
</table>

Table 3.2 describes significant value of Pre and Post Test Assessment of Brunnstrom Stage of Motor Recovery.

<table>
<thead>
<tr>
<th>Wilcoxon Singed Rank Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>MEAN</td>
</tr>
<tr>
<td>SD</td>
</tr>
</tbody>
</table>

Interpretation of Results:
Descriptive statistical analysis was administered to identify the mean range of age and gender. The average age of a patient is 48.85 years with the standard deviation of 14.31 years, while the patients in this sample are of age between 12 and 87 years. The majority of the patients involved in this study are male (85%) while only 15% are female. Average age of a male patient is 47.25 years and that of a female patient is 58.18 years, indicating that female patients are older than male patients in this sample. The mean difference between the variables of Modified Barthel index was analyzed descriptively, the data showed significant improvement in the mean difference of Chair/bed transfer, Ambulation, Stair climbing, Toilet transfer, Bathing, Dressing, Personal Hygiene and Feeding. The mean difference of bowel and bladder control does not show any significant difference.

To test the improvement in Activities of Daily Living total MBI scores obtained and paired sample t-test applied. The value of t-statistic is 25.03 and its p-value is 0.000 which is less than 0.05 indicating 5% level of significance. In addition the mean score of Modified Barthel Index increased from 66.85 to 86.96. Hence there is significant improvement in Activities of Daily living among patients with Hemiplegia after interdisciplinary team work. Brunnstrom stage of recovery of stroke, pre and post test analysis was tested using Wilcoxon Singed Rank Test. The value of Z-statistic is 5.36 and its p-value is 0.000 which is less than 0.05, indicating at 5% level of significance. Since the p-value of the test statistic is less than 0.05, 5% level of significance (Z = 5.36 & p = 0.000 < 0.05). Stage of Brunnstrom motor recovery is increased from Pre-test (3.23) to Post-test (3.63). Hence the evidence is sufficient to conclude that the motor recovery improved after the intervention of interdisciplinary rehabilitation.

Discussion:
The study was conducted to prove the effectiveness of interdisciplinary rehabilitation team work in improving Activities of Daily living among patients with Hemiplegia. The MBI results showed that there is significant improvement in ADL after intervention of interdisciplinary team (table 3.1). This study is inconsistent with Helen Rogers et al., 2003 in their study on "Increased intensity of interdisciplinary stroke rehabilitation to upper limb function", stated that early intervention of interdisciplinary team did not improve outcome after stroke, however they reasoned that the actual difference in the amount of therapy received by intervention and controlled groups was less than planned due to competitive therapy bias16. Though the reason is...
valid for the ineffectiveness of outcome the study design is experimental and could be reliable compared to this study of quasi experimental type. The variable of Modified Bathel Index (MBI) was compared with their mean difference (table 2.1). There is considerable increase in the mean value scores between pre test and post test (fig 3.1). The mean difference of Feeding (fig 2.8), Ambulation (fig 2.2), Dressing (fig 2.6) is comparatively higher than the other variables Stair climbing (fig 2.3), chair/bed transfer (fig 2.1), toilet transfer (fig 2.4) bathing (fig 2.5) and personal hygiene (fig 2.7). Activities of daily living skills like stair climbing, chair/bed transfer, toilet transfer and personal hygiene (grooming) was considered as more complex task than basic activities and has various environmental constrains. This study is in agreement with Eran et al., 2001 “Improved recovery in Activities of Daily living associated with remission of post stroke depression”, concluded that functional mobility and personal hygiene showed delayed recovery leading to depressive symptoms17. Study on “Psychometric properties of Barthel Index in Stroke patients” conducted by Ping – Hsueh et al., 2001 stated that lower responsiveness in later stage of stroke in Barthel Index may be due to plateau of improvement in ADL function after stroke, this study add evidence to present study, however the samples selected in this study are almost in later stage. Since the patient are independent in bowel and bladder control there is no mean difference in their pre test and post test scores (table 3.1). The relative recovery of synergy patterns is statistically significant (table 3.1), but the stage of improvement is within basic synergy patterns, voluntary control of movements is necessary for appropriate ADL activities. This is consistent with the study of Javier et al., 2000 on “QOL with stroke survivors evaluated one year after stroke” concluded that stroke patients are functionally independence in Barthel Index scores and increased score obtained in Physical dimensions which indicate motor recovery20. When comparing the mean differences between pre test and post test scores of Brunnstrom stages of recovery with mean differences between pre test and post test scores of MBI the rate of motor recovery is relatively low compared to that of MBI. This indicates that though the limb synergies are not functional, the interdisciplinary team contributions of rehabilitation professionals including pharmacological and non pharmacological treatment by PMR physician, prevention of spasticity and pain by physiotherapist, ADL training using adaptive devices by occupational therapist and prevention of deformity and reducing spasticity by orthotists using splints, enhances the level of independence in ADL with residual limb synergies. This holistic rehabilitation is difficult in individualized conventional therapies, whereas possible when team of professionals work together in sharing their knowledge, setting goals and effectively rehabilitating the patient. Hence interdisciplinary team work is effective in improving ADL among patients with Hemiplegia. Since there is limited published literature in improving activities of daily living by interdisciplinary team this study could be enhanced in future by refining the study design using control group for reliable outcome and by minimizing the extraneous variables related to age, gender and motor recovery stages since research literatures gives evidence that these variables can affect the functional outcome and motor recovery related to Activities of Daily living.

CONCLUSION:

The purpose of this study is to examine the effectiveness of interdisciplinary team in improving motor recovery and ADL among patients with Hemiplegia. The sample of 75 patients with Hemiplegia used in this study demonstrated a wide range of motor impairments and functional deficits in ADL. The interdisciplinary team rehabilitation of Physical Medicine and Rehabilitation Department was found to be effective in improving motor recovery and ADL among patients with Hemiplegia. Though the motor recovery was not appropriate to make patient functionally independent the holistic approach of interdisciplinary team worked to attain maximal level of functional independence in ADL with residual motor impairments. Recommendations in this study are to conduct similar studies in more diverse and large participant groups. This study could also be preceded further with Instrumental Activities of Daily Living in a population of chronic hemiplegic patients with the aid of advanced assistive technologies.

REFERENCES:

2. Dalal et al., Stroke Epidemic in India: Hypertension-Stroke control is urgently needed. JAPI 55, Oct 2007
the sensitivity of the Barthel Index for stroke rehabilitation. Journal of Clinical Epidemiology, 42, 703 - 709.
17. Eran et al., Improved Recovery in Activities of Daily Living Associated with Remission of Poststroke Depression https://doi.org/10.1161/01.STR.32.1.113 Stroke. 2001; 32: 113-117
INTRODUCTION:

One of the positive developments in India in recent years is that people are proactive about their health. Early detection of diseases in its latent phase helps in timely therapeutic intervention, thereby significantly reducing morbidity. Preventive health checkup is commonly adapted in many hospitals towards this goal. Although widely practised, there is no universally accepted definition of what constitutes a general health checkup. Many times ophthalmic evaluation is not included in the package assuming the ocular morbidity is low. 285 million people are visually impaired worldwide and the number is steadily increasing due to population growth and aging. The frequency of eye diseases has been suggested to start increasing around 40 yrs of age, with a steeper increase beginning around 60 years of age. After cataract, glaucoma is the leading cause of blindness and can be prevented if detected early. Thus in view of the importance of ocular morbidities and lack of data on its prevalence in master health checkup, this study was undertaken. The study results are encouraging to educate the society to utilize preventive health care and emphasize the importance of including ophthalmic evaluation in general health checkup.

SUBJECTS AND METHODS:

All adults who underwent master health checkup for a period of 6 months from November 2016 to April 2017 were included in the study. Ethical committee clearance from the institution was obtained. History includes duration of diabetes and systemic hypertension and specific eye complaints. Visual acuity was measured in both eyes in all individuals using Snellen visual chart. Slit lamp examination done in all individuals and corneal opacities, anterior chamber depth, presence of cataract were observed. Intraocular pressure was measured using Applanation Tonometer. In shallow anterior chamber, angle study was done to rule out occludable angle. When trabecular meshwork was not visualised in Gonioscopy, it was considered occludable angle. Fundus examination done using 90d lens and dilated fundus examination with IDO in relevant cases. In subjects with CD ratio of more than 0.3, glaucoma evaluation was advised. Diabetic retinopathy screening was done in all diabetics. In myopia fundus examination done to rule out peripheral retinal degeneration.

RESULTS AND DISCUSSION:

The study group had a total of 537 adults and consists of 312 (58.1%) males and 225 (41.8%) females. Age group distribution of study population is given in Table 1.

<table>
<thead>
<tr>
<th>AGE</th>
<th>NUMBER OF ADULTS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;40</td>
<td>132</td>
<td>24.58</td>
</tr>
<tr>
<td>41-50</td>
<td>172</td>
<td>32.02</td>
</tr>
<tr>
<td>51-60</td>
<td>162</td>
<td>30.16</td>
</tr>
<tr>
<td>&gt;60</td>
<td>71</td>
<td>13.22</td>
</tr>
</tbody>
</table>

CONCLUSIONS: The prevalence of ocular morbidities among adults undergoing master health checkup was 31.09%. This study provides data on spectrum eye diseases found during MHC and stresses the importance of ophthalmic evaluation in general check up. Key-words: MHC, ocular morbidities Key Messages: ophthalmic evaluation should be included in general health checkup.

Aims: To determine the prevalence of ocular morbidities in adults undergoing master health checkup. Settings and Design: A cross sectional study done in outpatient department of Apollo specialty hospitals, Vanagaram. Methods and Material: 537 adults who had MHC during the period from November 2016 to April 2017 were included in the study. Visual acuity, slitlamp examination, fundoscopy, intraocular pressure measurement with Applanation tonometry and angle study in relevant subjects were done. Statistical analysis used: Data entered in excel sheet and analysed using SPSS software. Results: In this study there were 312 males and 225 females. 29.42% were diabetic. Cataract was observed in 16.94%. The prevalence of cataract increases with increasing age and more prevalent in diabetic. Other findings include 2.6% had increased CD ratio, 5.06% of diabetic had retinopathy, shallow AC in 1.1%, ARMD in 0.37%, and dry eyes in 3.53%. Conclusions: The prevalence of ocular morbidities among adults undergoing master health checkup was 31.09%. This study provides data on spectrum eye diseases found during MHC and stresses the importance of ophthalmic evaluation in general checkup. Key-words: MHC, ocular morbidities Key Messages: ophthalmic evaluation should be included in general health checkup.
ranges from 23 to 84 with mean age of 68 (Table 1). 334 persons were between 40 to 60yrs of age. Out of 537 individuals, 158 (29.42%) were diabetic. Among diabetics, 106 (67.08%) were males and 52 (32.81%) were females. (Table 2) Cataract was observed in 139 eyes of 91 individuals. 43 had unilateral cataract and 48 had cataract in both eyes. 45 individuals with diabetes had significant cataract. The prevalence of cataract increases significantly with increasing age with p value <0.0001 (Table 3). The number of cataract observed in the age group more than 50 years was 81. Only 10 persons had cataract in the age group less than 50 years. On routine fundus examination 14 were found to have increased CD ratio. Out of 14 individuals 3 had raised intraocular pressure of more than 21 mm hg as measured by Applanation tonometry. Since raised intraocular pressure alone cannot diagnose or rule out glaucoma, all individuals with increased CD ratio were advised glaucoma evaluation. 6 had shallow anterior chamber with occludable angle with non visualisation of trabecular meshwork. All were advised YAG peripheral iridotomy to prevent acute congestive attack.

TABLE 2 SEX DISTRIBUTION AMONG DIABETICS

<table>
<thead>
<tr>
<th>MALES</th>
<th>FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number</td>
<td>Diabetics</td>
</tr>
<tr>
<td>312</td>
<td>106</td>
</tr>
<tr>
<td>225</td>
<td>52</td>
</tr>
</tbody>
</table>

TABLE 3 CATARACT DISTRIBUTION ACCORDING TO AGE

<table>
<thead>
<tr>
<th>AGE</th>
<th>Cataract</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;40</td>
<td>3</td>
<td>132</td>
</tr>
<tr>
<td>41 - 50</td>
<td>7</td>
<td>172</td>
</tr>
<tr>
<td>51 - 60</td>
<td>39</td>
<td>162</td>
</tr>
<tr>
<td>&gt;60</td>
<td>42</td>
<td>71</td>
</tr>
</tbody>
</table>

Among 158 diabetic 8 had diabetic retinopathy. 6 had mild to moderate non proliferative diabetic retinopathy and 2 had proliferative diabetic retinopathy. 81 were pseudophakic and visually significant posterior capsular opacification was seen in 6. 4 of them were diabetic. Other findings include pterygium in 6, ARMD in 2, dry eyes in 19, allergic and non specific Conjunctivitis in 11, keratoconus in 2, dacryocystitis in 1, chalazion in 1. A total of 169 individuals had ocular morbidities and prevalence of ocular morbidity observed in adults undergoing master health check up was 31.09%. 84 diabetic had cataract. 6.7% of pseudophakic had visually significant PCO. Other significant observation made were increased CD ratio in 2.6% of individuals. Shallow AC was seen in 1.1% and diabetic retinopathy was noted in 5.06% of diabetics. Other findings include pterygium in 1.48%, ARMD in 0.37%, allergic and non specific Conjunctivitis in 2.01%, dry eyes in 3.56%.

TABLE 4 PREVALENCE OF OCULAR MORBIDITIES IN DIABETICS AND NON DIABETICS

<table>
<thead>
<tr>
<th>Ocular morbidities</th>
<th>Diabetics n=158</th>
<th>Non diabetics n=379</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract</td>
<td>45(28.48)</td>
<td>46(12.13)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Increased CD ratio</td>
<td>4 (2.53)</td>
<td>10(2.63)</td>
<td>-</td>
</tr>
<tr>
<td>Shallow AC</td>
<td>1(0.63)</td>
<td>5(1.31)</td>
<td>-</td>
</tr>
<tr>
<td>PCO</td>
<td>4(2.53)</td>
<td>2(0.52)</td>
<td>-</td>
</tr>
<tr>
<td>Pterygium</td>
<td>2(1.26)</td>
<td>6(1.58)</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>28(17.72)</td>
<td>14(3.69)</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>84(53.16)</td>
<td>83(21.89)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

DISCUSSION:

The overall prevalence of ocular morbidities in India is reported to vary from 20% to 90%. In a study by Madhu Sharma et al (2) it was 40%. An ocular morbid condition is defined as a condition in study subject recognized or suspected, ocular or vision abnormality, which require treatment or surveillance. The present study found that the prevalence of ocular morbidities among adults undergoing master health check up to be 31.09%. The number of males undergoing master health check up is more than the females. About 29.4% of study group had diabetes and is the main motivating factor to undergo health check up. Even among diabetics, males outnumber females. This may be due to higher awareness and compliance of males to do yearly health check up. Age group varied widely between 23 to 84 years. Most were between 40 to 60 yrs. Even though many did not have ophthalmic complaints, the prevalence of ocular morbidity was 31.095% in this study and is higher among diabetics. About 53.13% of diabetics had ocular morbidities. The prevalence of cataract was found to be 16.94% in this study. ICMR collaborative study
showed the prevalence of cataract to be 30.1% to 72.2% and a study by Singh et al(3) showed the prevalence to be 40.4%. In a study by Pisudde et al(4) prevalence of cataract was 36.3%. In Aravind comprehensive eye survey(5), the prevalence of cataract in those aged 40 years and above was 47.5%. This study was done in population of higher socio economic status, so there is better awareness about cataract and the need for clear vision in job settings made them undergo cataract surgery at the earliest. The prevalence of diabetic retinopathy was 5.06% compared to 18.0% prevalence in a study by Raji raman et al(6). This again may be due to better awareness about diabetic retinopathy and yearly screening for retinopathy done in many diabetic clinic. Hence this study shows lower prevalence of retinopathy. Early detection and treatment of retinopathy is essential to avoid sight threatening complication and should be included in general health check up. Prevalence of shallow anterior chamber with occludable angle was found in 1.1% of individuals. In a study by Lingam vijaya et al(7), the prevalence of primary angle closure was found to be 0.7%. Shallow anterior chamber can lead to acute angle closure glaucoma and YAG iridotomy was advised as prophylactic measure. On routine fundus examination increased CD ratio was found to be 2.6%. 3 had increased intraocular pressure of more than 21 mm hg. None of them had ophthalmic c/o and they were advised glaucoma evaluation. In a study by Haq et al(8) the prevalence of glaucoma was found to be 0.9%. In this study only the optic nerve head was assessed and further evaluation is needed for establishing the diagnosis of glaucoma. Next to cataract glaucoma is the leading cause for blindness and the patient will be unaware of the disease until late stage. Routine screening is useful in early detection. Among degenerative retinal disorder, ARMD was noted in 0.37%. Singh et al(3) reported higher figure of 5.25% among elderly population in rural central India. In this study the age group varied widely and ARMD is generally seen in older age group and is the reason for low prevalence. Other ocular findings include dry eyes and allergic, non specific conjunctivitis conjunctivitis. In this study the prevalence of dry eyes was 3.56% in a study by Pisusde et al(4) the prevalence was 12.7% . Shahai et(9) al reported 18. 5% prevalence and significantly associated with increasing age and common in females. In this study it was more common among diabetics and in females.

CONCLUSION:

This study highlights the ocular morbidities seen in adults undergoing master health check up that are preventable or treatable and emphasize the importance of including ophthalmic evaluation in master health check up. Society should be educated about routine eye screening especially among diabetics for early referral to specialised ophthalmic care. Eye care services should be made mandatory in general health check up.

REFERENCES:

1. Pizzarello LD The dimensions of the problem of eye diseases among elderly Ophthalmology;94:1191-1195,1987


7. Lingam vijaya ,Ronne George Prevalence of angle closure glaucoma in rural southern population Arch.ophthalmology 2006; 124 (3):403-409 doi 10.1001/archophthal.124.3.403


INTRODUCTION:

Live total thyroidectomy surgeries in the surgical operation theatre, Department of surgery. Galen was the first to describe the recurrent laryngeal nerve (RLN) as a branch of a cranial nerve[1]. The vagus nerve is formed by the end of the fifth week of embryonic development[2], and the RLN becomes apparent by the end of the sixth week. This branch of the vagus nerve is associated with the sixth branchial arch of the embryonic pharynx, and it passes directly to the larynx. The embryo’s system of aortic arches is associated with the pharynx. The vagus branch lies caudal to the aortic arches. With the embryo’s development, the neck elongates, and the larynx moves cranially while the aortic arch and associated vessels remain in the thorax, and, with them, the vagus branch. This branch, reaching the larynx directly when first developed, now forms the adult’s characteristic recurrent loop. Therefore, the course of the RLN is determined by the pattern of development of the arteries with which it becomes related, and the variations of this pattern will determine variations in the anatomical disposition of this nerve. Nowadays surgeons do routine identification and dissection of recurrent laryngeal nerve to reduce its injury risk. Hence this study of the recurrent laryngeal nerve relations with inferior thyroid artery and tracheo oesophageal groove were undertaken.

MATERIALS AND METHODS:

Recurrent laryngeal nerve and its relations with inferior thyroid artery and tracheo oesophageal groove were observed in 15 overnment Stanley medical college, Chennai. Statistical analysis was done using Chi square test.

RESULTS:

Out of 30 Recurrent laryngeal nerves observed, it was found 60% inbetween the branches of inferior thyroid artery, 27% posterior and 13% anterior to the inferior thyroid artery. And on the left side, the recurrent laryngeal nerve was found 54% posterior to the inferior thyroid artery, 33% inbetween the branches of the inferior thyroid artery and 13% anterior. At 1cm below the lower border of the cricoid cartilage, 21 out of 30 (70%) were within the tracheo oesophageal groove, 9 out of 30 were in para tracheal position. The Chi-square test showed no statistically significant difference in the relationship of the recurrent laryngeal nerve to the inferior thyroid artery in the right and left side.

Conclusion: The significant variations observed would be important for surgeons who are doing thyroidectomy and other neck surgeries.

Key words: Recurrent laryngeal nerve, tracheo oesophageal groove, chi-square test, inferior thyroid artery.

Abstract

Background: Injury to the Recurrent laryngeal nerve is one of the most frequent and important causes of morbidity in thyroidectomy surgery. Due to increased variability in its course, it gets injured or crushed. This study was carried out to observe the variations in the relationship of the recurrent laryngeal nerve with ITA and Tracheo oesophageal groove.

Materials and Methods: Relations of recurrent laryngeal nerve with inferior thyroid artery and tracheo oesophageal groove were observed systematically and as per the rules advised by the ethical committee in 15 live total thyroidectomy surgeries in the surgical operation theatre, Department of surgery, Government Stanley medical college, Chennai. The results were tabulated and analysed by tests for the significance of the difference in the proportions.

Results: On the right side, the recurrent laryngeal nerve was found in between the branches of the inferior thyroid artery in 60%, posterior in 27% and anterior in 13%. And on the left side, the recurrent laryngeal nerve was found 54% posterior to the inferior thyroid artery, 33% inbetween the branches of the inferior thyroid artery and 13% anterior. At 1cm below the lower border of the cricoid cartilage 21 out of 30 (70%) were within the tracheo oesophageal groove, 9 out of 30 were in para tracheal position. The Chi-square test showed no statistically significant difference in the relationship of the recurrent laryngeal nerve to the inferior thyroid artery in the right and left side.

Conclusion: The significant variations observed would be important for surgeons who are doing thyroidectomy and other neck surgeries.

Key words: Recurrent laryngeal nerve, tracheo oesophageal groove, chi-square test, inferior thyroid artery.

INTRODUCTION:

Live total thyroidectomy surgeries in the surgical operation theatre, Department of surgery. Galen was the first to describe the recurrent laryngeal nerve (RLN) as a branch of a cranial nerve[1]. The vagus nerve is formed by the end of the fifth week of embryonic development[2], and the RLN becomes apparent by the end of the sixth week. This branch of the vagus nerve is associated with the sixth branchial arch of the embryonic pharynx, and it passes directly to the larynx. The embryo’s system of aortic arches is associated with the pharynx. The vagus branch lies caudal to the aortic arches. With the embryo’s development, the neck elongates, and the larynx moves cranially while the aortic arch and associated vessels remain in the thorax, and, with them, the vagus branch. This branch, reaching the larynx directly when first developed, now forms the adult’s characteristic recurrent loop. Therefore, the course of the RLN is determined by the pattern of development of the arteries with which it becomes related, and the variations of this pattern will determine variations in the anatomical disposition of this nerve. Nowadays surgeons do routine identification and dissection of recurrent laryngeal nerve to reduce its injury risk. Hence this study of the recurrent laryngeal nerve relations with inferior thyroid artery and tracheo oesophageal groove were undertaken.
left, the nerve was found 80% within the trachea oesophageal groove and 20% in paratracheal position. No paraoesophageal position was found in any side. The chi square test showed no statistically significant difference in the relationship of the recurrent laryngeal nerve to the inferior thyroid artery

**DISCUSSION:**

The present study was done in 15 total thyroidectomy surgeries in the Department of Surgery, Stanley medical college to observe the variations in the relationship of the recurrent laryngeal nerve to the inferior thyroid artery and tracheo oesophageal groove. The findings of the study have been found to be on par with most of the studies which were conducted in various set ups in India and other parts of the world. On the right side, recurrent laryngeal nerve was seen in between the branches of inferior thyroid artery in 60% (9 out of 15), posterior to the inferior thyroid artery in 27% (4 out of 15) and anterior to the inferior thyroid artery in 13% (2 out of 15) – Table 1

<table>
<thead>
<tr>
<th>SIDE OF THE NECK</th>
<th>FREQUENCY</th>
<th>ANTERIOR TO THE BRANCHES OF THE ITA</th>
<th>POSTERIOR TO THE BRANCHES OF THE ITA</th>
<th>IN BETWEEN THE BRANCHES OF THE ITA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td>15</td>
<td>2 (13%)</td>
<td>4 (27%)</td>
<td>9 (60%)</td>
</tr>
<tr>
<td>Left</td>
<td>15</td>
<td>2 (13%)</td>
<td>8 (54%)</td>
<td>5 (33%)</td>
</tr>
</tbody>
</table>

Table 1 On the left side, recurrent laryngeal nerve was seen posterior to the inferior thyroid artery in 54% (8 out of 15), in between the branches of inferior thyroid artery in 33% (5 out of 15) and anterior to the inferior thyroid artery in 13% (2 out of 15) – Table 1 and Chart 1. When both sides are compared out of 30 recurrent laryngeal nerves, 4 (13%) were seen anterior to the inferior thyroid artery 12 (40%) were seen posterior and 14 (47%) in between the branches of inferior thyroid artery, which coincides with John.E.Scandalaki’s et al.,[3] study (1976) but not with Fowler and Hansen study[4] (1929), Saadeldi A.Idris[5] (2013) and Takkallapalli anitha[6] study (2014). The recurrent laryngeal nerve at 1 cm below the cricoid cartilage were found to lie most frequently within the trachea oesophageal groove on both sides. The para tracheal position was greater on the right side. No para oesophageal position of the recurrent laryngeal nerve was observed. This coincides with the description of HW Gray[2], Berlin[7] (1935), John.E.Scandalaki’s et al.,[3] study (1976), AI –
CONCLUSION:

The recurrent laryngeal nerve is at high risk when it is in between or posterior to the branches of inferior thyroid artery. 47% of recurrent laryngeal nerve lies in between and 40% lies posterior to inferior thyroid artery. This knowledge is very valuable in preventing iatrogenic injury to the recurrent laryngeal nerve during thyroid surgeries.

CONFLICT OF INTEREST:

None

REFERENCES:


2. Gray SW,Skandalakis JE,Akin JT; Embryological considerations of thyroid surgery; developmental anatomy of the thyroid,parathyroid and the recurrent laryngeal nerve. Amsurg,1976;42 :621- 628


8. Al-Salihi, A.R.Dabbagh,A.W; Anatomy of the recurrent laryngeal nerve in normal Iraqis-Acta anat(Basel)1981;Vol.135(3);245-247

9. Haller, JustinM-study;Clinical Relevant Anatomy of Recurrent laryngeal nerve. (2012) Vol.37;Issue 2; P 97-100; PMD 21540775

INTRODUCTION:

The Degenerative valve disease is the most common form of valvular heart disease in the developed world whereas rheumatic heart disease accounts for most valve pathology in developing nations like India (1). Valvular heart disease affects more than 100 million persons worldwide, and is associated with significant morbidity and mortality (2). Currently, the overall prevalence of mitral or aortic valvular heart disease is estimated to be 2.5% in the general population of the United States, with a prevalence exceeding 10% in subjects over 75 years of age (3). The actual burden of valvular disease in India is not known. As the aging of the population worldwide increase, the prevalence of such pathologies is expected to rise exponentially (4). Surgical valve replacement (or repair of mitral valves) is currently the standard of care for treatment of valvular heart disease in patients at low and intermediate risk for surgery (5). However, in the last few years, a proliferation of trans catheter technologies now offers alternatives to surgery, especially in patients at high risk. There are different types of surgical prosthetic heart valves exist mechanical and biological (6). Mechanical heart valves (MHVs) are more thrombogenic, yet more durable. The valves have evolved from the early caged ball and tilting disc design to the contemporary bileaflet valves mounted on a Teflon- or Dacron-covered sewing ring (6). Bio prosthetic heart valves (BHV’s) are less thrombogenic than MHV. They exhibit more natural hemodynamic properties, but are less durable (7). Surgical BHVs are either of porcine origin or are synthesized from a sheet of bovine pericardium that is mounted on a frame or stent and covered by fabric, which serves as a sewing ring (8). The Stentless BHVs have also been developed; these provide greater effective orifice areas and lower trans
prosthetic gradients than stented prosthetic valves (PVs) (7,8). Conversely, all of the trans catheter aortic and mitral PVs consist of a porcine or bovine pericardial tissue trileaflet mounted on a self-expandable or balloon-expandable metallic frame (9). The incidence of post valve thrombosis may be as high as 13% in the first year. It is about 20% overall in patients with tricuspid valve prostheses and 0.2% - 6% patient-year in those with aortic or mitral valve prostheses (10). The incidence of obstructive PVT for mechanical valves varies between 0.3–1.3% patient years (11). The risk of Prosthetic Valve (PV) thrombosis and Thrombotic Embolism (TE) is higher with MHVs than with BHV, higher for PVs implanted in the mitral position versus the aortic position, and higher for right-sided PVs than left-sided PVs (12). The annual rate of PV thrombosis with MHVs ranges from 0.1% to 5.7%, with higher rates observed with specific valve types, in the early perioperative period, with MHVs implanted in the mitral and tricuspid position, and in association with sub therapeutic anticoagulation (13). When considered in terms of MHV obstruction, the annual incidence ranges from 0.5% to 6.0% (13). In patients with MHVs, TE, which may or may not originate from the prosthesis, has an estimated annual incidence of 2.5% to 3.7%. Operation has been the traditional treatment for PVT. However, reported operative mortality rates range between 0% and 69%, largely depending on clinical functional class (14). Fibrinolytic therapy is an alternative to surgical treatment and is considered the treatment of choice for tricuspid PVT (15,16). However, because of the high risk of cerebral thromboembolism during thrombolysis for left-sided PVT, its use is reserved for high risk surgical candidates the use of thrombolysis in low risk patients remains controversial (17). Fibrotic pannus in growth with MHVs, manifesting as PV dysfunction, occurs with an estimated annual incidence of 0.2% to 4.5% (12). Non-obstructive PVT is a relatively frequent finding in the postoperative period, with a reported incidence as high as 10% in recent trans oesophageal echocardiography (TOE) studies (13). Although these are usually small non-obstructive thrombi, they underline the necessity of optimal anticoagulation in the postoperative period. According to a series of surgical interventions for PVT, the first postoperative year is marked by a 24% incidence of thrombosis, with a stable incidence between the second to fourth years of approximately 15%, with a subsequent decrease thereafter (17). The reported incidence is influenced by the intensity and timing of serial imaging follow-up, and it is likely that many cases of thrombus formation remain undetected. Prosthetic valve thrombosis (PVT) is a rare but serious complication of valve replacement, most often encountered with mechanical prostheses. The significant morbidity and mortality associated with this condition warrants rapid diagnostic evaluation. The real burden of prosthetic valve thrombosis in public heath hospitals are not known and there are only few published studies in India. The main objective of the study is to highlight the challenges and risk factors of prosthetic valve thrombosis in a low resource setting and suggest measures to improve the present scenario.

**MATERIALS AND METHODS:**

**Study design and population:**

This hospital based cross-sectional study was carried out in the department of Cardiology in Stanley Medical College, for a period of five years (January 2011 to January 2016).

**Sample size and sampling strategy:**

The sample size was 60 Patients who had underwent valve replacement at the tertiary hospital and who were on regular follow up. Patients who were in the 25-60 were included in the study. Patients who were more than 60 years old, pregnant, Left ventricular ejection fraction 40%, ECHO showing pannus and Bio-prosthetic valve were excluded in the study.

**Data collection, clinical:**

We used a structured Proforma to collect data regarding socio-demographic details, behavioural risk factors and history of other diseases. We also reviewed the clinical records and prescription for drugs and diagnostic tests. After confirming the consent, the ECHO examination was carried out.

**Methods:**

Sixty consecutive patients admitted to the intensive care unit between January 2011 to January 2016 who met clinical and echo cardio graphic criteria of prosthetic valve dysfunction (thrombotic), were included in the study. A recent onset of significant dyspnoea, orthopnoea, and/or paroxysmal nocturnal dyspnoea and signs of pulmonary venous congestion, associated with absent prosthetic valve clicks with or without audible stenotic or regurgitant murmurs across the prosthetic valve were considered as clinical criteria of prosthetic valve obstruction. Echocardiographic signs of prosthetic valve obstruction in the mitral and tricuspid positions were a calculated valve area of less than 1.5 cm2 with an associated end-diastolic gradient >10 mmHg. In the aortic position, a peak systolic gradient >50 mmHg was considered abnormal. A leaflet movement was evaluated by transthoracic echocardiographic (TTE) studies. Thrombolytic therapy was administered as intravenous IU/hour up to obtain a total response or otherwise to a maximum of 72 hours was recorded. Chest X-ray and Doppler transthoracic echocardiography performed at baseline were compared with others report during complication. Patient records reviewed in allied department were coded and recorded by Statistical analysis.

The socio demographic data, clinical, and laboratory parameters were considered as other explanatory variables. Descriptive analysis of the explanatory and outcome variables was done using mean and standard deviation for quantitative variables, frequency, and percentages for categorical variables. Chi-square test and the Fisher exact test have been used for qualitative data to calculate the p value, and unpaired student t test and non-parametric Wilcoxon on-Mann-Whitney test were used to statistically compare quantitative data for low grade and high grade along with cardiac status in between two groups of patients. Difference with a p value of <0.05 was considered statistically significant.

**Protection of human subjects:**

This study was approved by Institutional Human Ethics Committee of the Stanley Medical College, Chennai, Tamil Nadu. Informed written consent was obtained from study.
RESULTS:

The median age group of the study population was 30±10. Mean time interval between onset of symptoms and diagnosis was 30 days. The prevalence of thrombosis were higher in the age group 30-40 years (31%). The prevalence of valve thrombosis was higher in female 18%. The most common valve involved were aortic valve 80%. The mortality due to Aortic valve thrombosis was 40.6%. The mortality due to aortic valve thrombosis was higher in women (100%) than among males (30%). The mortality due to mitral valve thrombosis was 20%. The mortality due to mitral valve thrombosis was higher in women 25% and among males it was 15%. The overall sub-therapeutic INR was 86.6. The sub-therapeutic INR were higher among women (94%) when compared to males (76%). The drug non compliance in the study population was 70%. The non compliance among women was 80% when compared to men 56%. The reason for drug non compliance was poor hospital visit for INR titration (73%), Drug interaction (17%), Illness (10%) and food Interaction (5%). The systemic embolization in the study population was 10%. In women the embolization was 11% which was slightly higher when compared to men 8%. The co-morbidities in the study population Diabetes (13.2%), renal abnormalities (20%), Anemia (25%), Infection (Leukocytosis) (58%), Smoking (13%) and prior PVT (8%). The risk factor which were significant for mortality due thrombosis were Creatinine >1.5, Prior history of PVT, Systemic embolization, Diabetes and Anemia the p value (<0.5).

DISCUSSION:

The epidemiology of valvular disorders has drastically changed, with a marked reduction in the incidence and prevalence of rheumatic heart disease and a substantial increase in the prevalence of degenerative valve diseases. Trans catheter valve therapies for aortic stenosis and mitral regurgitation are currently an established treatment option in patients not suitable for conventional surgical treatment or of at least intermediate risk for aortic surgery (18). All foreign bodies (including PVs) implanted within the human cardiovascular system are thrombogenic, potentially implying the need for short- or long-term anticoagulation to prevent thrombosis, which can lead to disabling or fatal stroke. PV thrombosis is a pathological entity characterized by thrombus formation on the prosthetic structures, with subsequent PV dysfunction with or without thromboembolism (TE) (19). PV dysfunction is a complication of mechanical or biological prostheses, which can cause reduced leaflet motion or impaired leaflet coaptation, leaflet thickening, reduced or increased effective orifice area (leading to either stenosis or insufficiency as the primary valve defect, respectively), increased transvalvular gradient or transvalvular regurgitation, with or without development of valve-related symptoms (20). At least 4 main etiologies may account for PV dysfunction: 1) PV thrombosis 2) fibrotic pannus in growth; 3) PV degeneration; and 4) PV endocarditis with vegetation formation (21). These pathological entities may occur simultaneously, and a component of thrombus formation is often observed in concert with fibrotic pannus ingrowth, PV degeneration, or PV endocarditis (22). However, determination of the main etiology of PV dysfunction is crucial because the treatment differs for each of these conditions. The type of PV, its anatomical location and patient-specific risks of TE and bleeding risks influence the specific intensity and duration of antithrombotic treatment to prevent PV thrombosis with subsequent PV dysfunction and/or TE (2). Recent data from computed tomography imaging studies suggest that reduced leaflet motion and leaflet thickening after implantation are relatively common phenomena that might be associated with an increased risk of stroke (23). Of note, reduced leaflet motion more commonly occurs in patients not receiving oral anticoagulants, and therapeutic anticoagulation is associated with resolution of reduced leaflet motion and hypo attenuated leaflet thickening, supporting a thrombotic origin (24). Given the exponential rise in transcatheter valve replacement and repair therapies, it is important to identify the optimal antithrombotic therapies/strategies to prevent PV thrombosis. Therefore, the incidence, mechanisms, and clinical implications of PV thrombosis in the surgical era, are challenging and the perspective on optimal long-term antithrombotic management in the era of transcatheter valve therapies is yet to be studied. A search of at least 200 published reports of left-sided prosthetic valve thrombolysis showed an 82% initial success rate, an overall thromboembolism rate of 12%, and a stroke rate of 5% - 10%, with 6% death, 5% major bleeding episodes and 11% recurrent thrombosis (24, 25). Inadequate anticoagulation in patients with mechanical heart valves can result in a significant incidence of thromboembolism. The incidence of prosthetic valve thrombosis (PVT) and total thromboembolism (thromboembolism with permanent deficit or transient ischemia) during warfarin (Coumadin) therapy is dependent on valve type and location and especially adequacy of anticoagulation respectively (26). Thrombolytic treatment of left-sided PVT has been accepted for critically ill patients in functional class III or IV in whom surgical intervention carries high risk or in patients with contraindication to operation (27). The reasoning against thrombolysis in patients in functional class I or II is based on the relatively low surgical mortality rate of at least 20% in functional class III or IV in whom surgical intervention carries high risk or in patients with contraindication to operation (27). The reasoning against thrombolysis in patients in functional class I or II is based on the relatively low surgical mortality in this group as opposed to the embolic risk of 12% to 17% caused by thrombolysis (28). Reports of thrombolytic treatment in patients presenting in functional class I or II show an 88% success rate, 3% major stroke rate and zero mortality, whereas the lowest surgical mortality rate in a similar group has been reported as 5% (27, 28, 29). An alternative approach used successfully by some investigators in functional class I or II patients with a large amount of thrombus takes advantage of the different antithrombotic actions of heparin and warfarin and their enhancement of longer term endogenous lysis. The use of subcutaneous heparin (every 12 h, aPTT 55 to 80 s) plus warfarin (INR 2.5 to 3.5) for 3 months usually dissolves moderate amounts of residual thrombus. Patients with mitral or aortic PVT documented by TEE with Doppler flow obstruction and functional class III or IV symptoms should be treated with fibrinolysis if the surgical risk is high and there is no contraindication. Surgical therapy is an alternative for patients in functional class III or IV not at high surgical risk (28, 29). In addition, obstruction due to endocarditic...
with abscess formation and usually very large thrombi with obstruction or mobile masses are indications for operation. The benefit and risk of the many factors of the individual patient must be balanced against the expertise and experience at each center to arrive at a decision for thrombolysis or operation (30).

CONCLUSION:

Prosthetic valve thrombosis (PVT) is a rare but serious complication of valve replacement, most often encountered with mechanical prostheses. The significant morbidity and mortality associated with this condition warrants rapid diagnostic evaluation. However, diagnosis can be challenging, mainly because of variable clinical presentations and the degree of valvular obstruction. Although surgical treatment is usually preferred in cases of obstructive PVT, optimal treatment remains controversial. The different therapeutic modalities available for PVT (heparin treatment, fibrinolysis, surgery) will be largely influenced by the presence of valvular obstruction, by valve location (left- or right-sided), and by clinical status. Hence, treatment of an obstructive left-sided PVT will differ from that of non-obstructive or right-sided PVT. Thrombolysis, followed by heparin, warfarin and aspirin, is advised for high risk surgical candidates with left-sided PVT. Inadequate anticoagulation in patients with mechanical heart valves can result in a significant incidence of thromboembolism. The incidence of prosthetic valve thrombosis (PVT) and total thromboembolism (thromboembolism with permanent deficit or transient ischemia) during warfarin (Coumadin) therapy is dependent on valve type and location and especially adequacy of anticoagulation.

REFERENCES:


Background: Coronary artery disease may lead to sudden death and may cause symptoms that may limit an individual's ability to carry out normal daily activities. PTCA (percutaneous transluminal coronary angioplasty) is a procedure to relieve coronary obstructions in these patients. However, rates of re-narrowing of the treated vessel (re-stenosis) are high which may require a repeat intervention this may lead to significant impact on the health system in a resource poor settings. To understand the burden of restenosis we undertook a comprehensive evaluation of patients who underwent this procedure over a period of six month in our Institute.

Methods: Sixty consecutive patients underwent PTCA in the coronary care unit between September 2011 to February 2012 who met clinical and inclusion criteria, were taken in the study. A recent onset of significant dyspnoea, orthopnea, and/or paroxysmal nocturnal dyspnoea and signs of congeitive cardiac failure were considered. A detailed physical examination to rule out postural drop and ECG was done compared with the baseline. Ischemic work up was done after admitting the patient which involved treadmill, ECHO and angiogram. Patient data collected included risk factors for coronary artery disease, presenting condition at time of PCI, angiographic data, including number of stents placed, percent residual stenosis, residual dissection, post-procedural. Thrombolysis in Myocardial Infarction trial flow (TIMI) and maintenance antiplatelet therapy (none, aspirin, thienopyridine, or both), antiplatelet therapy before were recorded. Patients follow up visits and events records were coded.

Results: The Median age of our study population was 50(±10) years. The majority of participants were males (91.67%). The burden of ISR in the study population was 33.3% patients. About 5% had ISR class II type 75% had ISR class III type and 20% had ISR class IV type. Among the study patients, 32.7% male patients and 40% female patients developed ISR In context of cardiac event 86.67% had presented with STEMI, 1.6% NSTEMI, 3.3% with unstable Angina and 8.3% patients had presented with Chronic stable Angina. In the STEMI group patient 69.3% had AWMI and 30.7% were IWMI. Among the STEMI Group of patients 32.69%, Non- ST elevation patients (100%), Unstable Angina patients 50%, Chronic stable Angina, 20% developed ISR. About 21.62% with single vessel disease, 55.5% with two vessel disease, 40% patients with triple vessel diseases, developed ISR.. Patients with single vessel disease had minimal ISR. In the context lesion 31.81% had type A lesion and 68.1% had type B lesion. Among the type A lesion, about 31.8% and 34.2% with type B lesion. About 25% of the patients had Thrombus present and 40% developed ISR. About 35.71% patients who were smokers, 62% who consumed alcohol developed ISR and majority had Grade IV ISR. About 25% of patients had type II Diabetes Mellitus and 40% had ISR. Hypertensive in the participants were 16.67% and 30% of them developed ISR. In regards to thrombolysis 57.69% had been Thrombolysed and 42.3% had been not Thrombolysed. Among patients with lesion length less than 10mm, 14.2% patients developed ISR. In regards to stent length 32.1% patients with Stent length (<20mm) and 34.3% with Stent length (>20mm) developed ISR. Among those with direct stenting 71% patient and 41.3 with non-direct stenting developed ISR. About 51.6% patients under went Post dilatation of the stent \Post and 38.7% patients developed ISR. Among patients in whom Post dilatation was not done, 27.5% patients developed ISR About 8.3% patients had TIMI 2 flow after PTCA and 91.67% patients had TIMI 3 flow. Among patients with TIMI 2 (100%) and TIMI 3 flow, (27.27%) patients developed ISR. With respect to medication 41.6% patients were given Tirofiban and patients 58.3% were not given Tirofiban. Among patients given Tirofiban, 36% patients and 31.42% not given Tirofiban developed ISR. Among the patient who presented with stable Angina, 52.3%, Unstable Angina about 80%, 3.4% of asymptomatic developed ISR. Among TMT positive patient, all patients developed ISR (100%). Among TMT Negative patients, 30% developed ISR. Among patients with sustained improvement in RWMA, 21.6% among those with no change in RWMA, 55.5% and patients with worsening of RWMA, 50% patients developed ISR.

Conclusion: Restenosis (re-narrowing) of vessels treated with stents may lead to major adverse cardiac events. It the forms a major complication to tackle in low resource clinical setting. In order to reduce restenosis, stents that elute drugs are effective. Use of DES will result in decrease in the number of times patients had to be re-treated and also decreases immediate complications. Keywords: TMT, metal stunts, NSTEMI.

INTRODUCTION:

Coronary artery disease results from the build-up of fatty material on the internal surface of the blood vessels which supply the heart. This results in gradually reducing its supply of oxygen. There may or may not be associated with angina pain. The disease may cause sudden death or limit normal daily activity. A number of strategies have been developed to control symptoms or restore blood flow.
supply in people with narrowed vessels, including medication and surgical interventions(3). Less invasive methods utilise special equipment which is introduced into a patient's vessels and guided to the site of obstruction on a fine catheter. Percutaneous coronary intervention (PCI) with stenting is the most common method of myocardial revascularization(4). The main strategy used to control symptoms or restore blood supply is Percutaneous Transluminal Coronary Angioplasty (PTCA) in which a small elongated balloon is inflated at the site of the plaque, compacting the deposited material against the vessel wall(5). These are expandable devices resembling a tubular wire mesh used to 'scaffold' vessels open during PTCA procedures to relieve coronary obstructions in patients(4,5). The success rates associated with these devices are high. Complication rates are low and most patients experience improvement in symptoms(6). Coronary stents have been shown to provide better short- and long-term outcome when compared with balloon angioplasty alone(7,2). Both bare-metal stents (BMSs) and drug-eluting stents are used in clinical practice, the former for more than two decade, whereas drug-eluting stents have been commercially available since early 2000(8). Although drug-eluting stents are now used in the majority of procedures, BMSs are still indicated for a variety of patients based on individual clinical situations (9). Antiplatelet therapy is routinely administered to prevent stent thrombosis after PCI with BMS(10). Current oral pharmacotherapy includes aspirin and clopidogrel. Bare metal stent thrombosis with this regimen occurs in less than 0.5% of patients at 30 days after PCI with BMS (10). The rates of restenosis or re-narrowing of the treated vessel which may require a repeat intervention, are significant which may limit the use of stents (11,12). An adaption of stent technology involves stents which release (elute) drugs over time in order to reduce restenosis (13). However, these stents are expensive in comparison to their bare metal equivalent (14). Several reviews which has been published there were no statistically significant differences in death, myocardial infarction or vessel blockage were reported between drug-eluting stents (DES) and bare metal stents (BMS) (15). Thrombosis of a stent is associated with major morbidity and mortality (16). To address the hypothesis that the risk of major adverse cardiac events (MACEs) and restenosis is related to the time interval between PCI with BMS, we undertook a comprehensive evaluation of all patients who underwent this procedure over a period 6 months in our Institute.

MATERIALS AND METHODS:

Study design and population:

This hospital based cross-sectional study was carried out in the department of Cardiology in Government Rajaji Hospital, Madurai Medical College, Tamil Nadu, for a period of 6 months (September 2011 to February 2012). Sample size and sampling strategy:

The sample size was 60. Patients who had initially presented with STEMI (ST elevation Myocardial infarction), NSTEMI (Non ST elevation myocardial infarction), Unstable Angina, Chronic stable Angina and subsequently undergone PTCA one year ago at the tertiary hospital and who were on regular follow up were included in the study. We excluded patients with post PTCA dissection and stent Thrombosis.

Data collection, clinical:

We used a structured questionnaire to collect data regarding socio-demographic details, behavioural risk factors and history of other diseases. We also reviewed the clinical records and prescription for drugs and diagnostic tests. After confirming the consent, evaluation of ischemia by ECHO examination (Echocardiogram), Treadmill test and Quantitative coronary Angiogram.

Methods:

Sixty consecutive patients underwent PTCA in the coronary care unit between September 2011 to February 2012 who met clinical and inclusion criteria, were included in the study. A recent onset of significant dyspnoea, orthopnoea, and/or paroxysmal nocturnal dyspnoea and signs of congestive cardiac failure were considered. A detailed physical examination to rule out postural drop and ECG was done compared with the baseline. Ischemic work up was done after admitting the patient which involved treadmill, ECHO and angiogram. Treadmill test with modified Bruce Protocol to assess the functional capacity and the burden of ischemia. Complete transthoracic Echocardiography study including two-dimensional, M-Mode, Colour flow spectral Doppler using ALOKA SSD 4000 and PHILIPS IE- 33 Echocardiography machine. Continuous ECG Monitoring of the patients was done during the procedure with the patients lying in the standard left lateral decubitus position. Standard Regional Wall Motion Score Index was calculated for all patients using parasternal short axis view. Modified Simpsons method was employed for estimating LVEF (Left Ventricular Ejection Fraction). Later Dobutamine stress echo was performed in all patients to assess the viability of the existing Myocardium. Quantitative coronary Angiogram was performed. Measurements were made within the stent and within stented vessel segment, which included 5mm of its proximal and distal borders. Binary restenosis was present if the diameter stenosis was >50%. Qualitative assessment of the pattern of Restenosis was performed according to the classification introduced by MEHRAN et al(17). In stent Restenosis (ISR) was divided into to (≤10mm in length), diffuse (>10mm with in the stent), Proliferative (>10mm extending outside the stent), and occlusive ISR. Chest X-ray and Doppler transthoracic echocardiography performed at baseline were compared with others report during complication. The complete medical records of identified patients were reviewed individually. Patient demographic data included risk factors for coronary artery disease, presenting condition at time of PCI (PCI performed on an elective basis or urgently for acute coronary syndrome, as well as pre-PCI cardiogenic shock), angiographic data (including number of stents placed, percent residual stenosis, residual dissection, post-procedural, TIMI (Thrombolysis in Myocardial Infarction trial flow, and successful PCI in all lesions stented), maintenance antiplatelet therapy (none, aspirin, thienopyridine, or both), antiplatelet therapy before. Patients follow up visits and events records were coded. Patient clinical records and angiographic data were reviewed and allied department

MATERIALS AND METHODS:

Study design and population:

This hospital based cross-sectional study was carried out in the department of Cardiology in Government Rajaji Hospital, Madurai Medical College, Tamil Nadu, for a period of 6 months (September 2011 to February 2012).

Sample size and sampling strategy:

The sample size was 60. Patients who had initially presented with STEMI (ST elevation Myocardial infarction), NSTEMI (Non ST elevation myocardial infarction), Unstable Angina, Chronic stable Angina and subsequently undergone PTCA one year ago at the tertiary hospital and who were on regular follow up were included in the study. We excluded patients with post PTCA dissection and stent Thrombosis.

Data collection, clinical:

We used a structured questionnaire to collect data regarding socio-demographic details, behavioural risk factors and history of other diseases. We also reviewed the clinical records and prescription for drugs and diagnostic tests. After confirming the consent, evaluation of ischemia by ECHO examination (Echocardiogram), Treadmill test and Quantitative coronary Angiogram.

Methods:

Sixty consecutive patients underwent PTCA in the coronary care unit between September 2011 to February 2012 who met clinical and inclusion criteria, were included in the study. A recent onset of significant dyspnoea, orthopnoea, and/or paroxysmal nocturnal dyspnoea and signs of congestive cardiac failure were considered. A detailed physical examination to rule out postural drop and ECG was done compared with the baseline. Ischemic work up was done after admitting the patient which involved treadmill, ECHO and angiogram. Treadmill test with modified Bruce Protocol to assess the functional capacity and the burden of ischemia. Complete transthoracic Echocardiography study including two-dimensional, M-Mode, Colour flow spectral Doppler using ALOKA SSD 4000 and PHILIPS IE- 33 Echocardiography machine. Continuous ECG Monitoring of the patients was done during the procedure with the patients lying in the standard left lateral decubitus position. Standard Regional Wall Motion Score Index was calculated for all patients using parasternal short axis view. Modified Simpsons method was employed for estimating LVEF (Left Ventricular Ejection Fraction). Later Dobutamine stress echo was performed in all patients to assess the viability of the existing Myocardium. Quantitative coronary Angiogram was performed. Measurements were made within the stent and within stented vessel segment, which included 5mm of its proximal and distal borders. Binary restenosis was present if the diameter stenosis was >50%. Qualitative assessment of the pattern of Restenosis was performed according to the classification introduced by MEHRAN et al(17). In stent Restenosis (ISR) was divided into to (≤10mm in length), diffuse (>10mm with in the stent), Proliferative (>10mm extending outside the stent), and occlusive ISR. Chest X-ray and Doppler transthoracic echocardiography performed at baseline were compared with others report during complication. The complete medical records of identified patients were reviewed individually. Patient demographic data included risk factors for coronary artery disease, presenting condition at time of PCI (PCI performed on an elective basis or urgently for acute coronary syndrome, as well as pre-PCI cardiogenic shock), angiographic data (including number of stents placed, percent residual stenosis, residual dissection, post-procedural, TIMI (Thrombolysis in Myocardial Infarction trial flow, and successful PCI in all lesions stented), maintenance antiplatelet therapy (none, aspirin, thienopyridine, or both), antiplatelet therapy before. Patients follow up visits and events records were coded. Patient clinical records and angiographic data were reviewed and allied department.
were coded and recorded by the field investigator. About 10% of records are audited by the supervisor for quality control.

**Statistical analysis:**

The socio demographic data, clinical, and laboratory parameters were considered as other explanatory variables. Descriptive analysis of the explanatory and outcome variables was done using mean and standard deviation for quantitative variables, frequency, and percentages for categorical variables. Chi-square test and the Fisher exact test have been used for qualitative data to calculate the p value, and unpaired student t test and non-parametric Wilcoxon on-Mann-Whitney test were used to statistically compare quantitative data for low grade and high grade along with cardiac status in between two groups of patients. Difference with a p value of <0.05 was considered statistically significant.

**Protection of human subjects:**

This study was approved by Institutional Human Ethics Committee of the Government Rajaji Hospital, Madurai Medical College, and Tamil Nadu. Informed written consent was obtained from study participants after explaining the purpose of the study, risks, and benefits involved. The personal and statistical data of the participants were kept confidential throughout the study period.

**RESULTS:**

The Median age of our study population was 50(±10) years. The majority of participants were males (91.67%). About 33.3% patients had developed ISR. Among the study patients, 32.7% male patients and 40% female patients, two patients developed ISR. Among the patients developed ISR, 5% had ISR class II type 75% had ISR class III type and 20% had ISR class IV type. About 70% study participants were smokers and 35.71% patients developed ISR and all had Gr IV ISR. In our study to 62% patients had consumed alcohol more than two standard drinks and 37% developed ISR and all had Grade IV ISR. About 25% of patients had type II Diabetes Mellitus and 40% had ISR. Hypertensive in the participants were 16.67% and 30% of them developed ISR majority had four Grade IV ISR. In our study population 86.67% had presented with STEMI, 1.6% with NSTEMI, 3.3% patients had presented with unstable Angina, and 8.3% patients had presented with Chronic stable Angina. Among the STEMI Group of patients 32.69%, Non-ST elevation patients One patient (100%), Unstable Angina patients 50%, Chronic stable Angina, 20% developed ISR in the STEMI group patient 69.3% had AWMI and 30.7% were IWMIs. Among AWMI patients about 30.5% patients and 37.5% IWMIs patients developed ISR. Among the patients, 57.69% had been Thrombolyzed and 42.3% had been not Thrombolyzed. Among the Thrombolyzed patients, 33.3% had developed ISR (33.33%) and 31.8% non-Thrombolyzed patients. Among the re-thrombolyzed patients, 30% developed ISR. Among the failed Thrombolyzed, 40% developed ISR. In the study population, 61.67% patients had single vessel disease, 30% two vessel disease, 8.3% Triple vessel disease. Among them about 21.62% with single vessel disease, 55.5% with two vessels disease, 40% patients with triple vessel diseases, developed ISR. Patients with single vessel disease had minimal ISR. In the context lesion 31.81% had type A lesion and 68.1% had type B Lesion. Among the type A lesion, about 31.8% and 34.2% with type B lesions developed ISR. About 25% of the patients had Thrombus present and 40% developed ISR. In our study 23.3% patients had Lesion length less than 10 mm and 76.6% patient with Lesion length more than 10 mm (76.67%). Among patients with Lesion length less than 10 mm, 14.2% patients developed ISR and 40% in lesion length more than 10 mm (18 patients) developed ISR. In regards to stent length 46.6% deployed with Stent length (<20 mm), 53.3% deployed with Stent length (>20 mm) (53.33%). Among them 32.1% patients with Stent length (<20mm) and 34.3% with Stent length (>20mm) developed ISR. In our study of 23.3% underwent direct stenting (23.3%) and 76.6% patients did not undergo direct stenting. Among those with direct stenting 7.1% patient developed ISR and 41.3 with non direct stenting developed. About 51.6% patients underwent Post dilatation of the stent and 38.7% patients developed ISR. Among patients in whom Post dilatation was not done, 27.5 patients developed ISR. About 8.3% patients had TIMI 2 flow after PTCA and 91.67% patients had TIMI 3 flow. Among patients with TIMI 2 flow all of them developed ISR (100%). Among patients with TIMI 3 flow, (27.27%) patients developed ISR. With respect to medication 41.6% patients were given Tirofiban and patients 58.3% were not given Tirofiban. Among patients given Tirofiban, 36% patients and 31.42% not given Tirofiban developed ISR. In our study of 60 patients, 35% patients presented with stable Angina (35%), 16.6% patients with unstable Angina (16.67%). Among the patient who presented with stable Angina, about 52.3%, Unstable Angina about 80%, 3.4% of asymptomatic developed ISR. In our study 81.6% patients had TMT Negative (81.67%) and 18.3% patients had TMT Positive. Among TMT positive patient, all patients developed ISR (100%). Among TMT Negative patients, 30% developed ISR. In our study of 60 patients, 37 patients showed sustained improvement of RWMA (61.67%), 30% patients showed no change in RWMA (30%), 6.6% patients showed worsening of RWMA, 1.6% patient showed Biphasic response (1.67%). Among 37 patients with sustained improvement in RWMA, 21.6% developed ISR. Among those with no change in RWMA, 55.5% patients developed ISR (55.55%). Among patients with worsening of RWMA, 50% patients developed ISR.

**DISCUSSION:**

Restenosis following stent placement is a complex process and results predominantly from a proliferation of smooth muscle cells into and around implanted stents (18). Rates of restenosis in PTCA with stents are recorded as ranging between 20 and 50 per cent, depending on the size, location and complexity of the lesion (19). In the case of only percutaneous transluminal coronary angioplasty (PTCA), a small elongated balloon is inflated at the site of the plaque, effectively compacting the deposited material against the vessel wall may not be enough to prevent restenosis (18, 19). Other methods which involve introducing cutting devices, radiation or lasers are also available in some medical facilities (20). Although the incidence of stent thrombosis decreased in recent years due to dual antiplatelet therapy and improved stent design, the
consequences of stent restenosis are often severe However, rates of restenosis (re-narrowing of the treated vessel) which may require a repeat intervention, are a significant limitation of PTCA with the use of stents. Most patients that experience stent restenosis with thrombosis may die or suffer AMI (21). Several physiological processes might contribute to the increased incidence mainly renin-angiotensin-aldosterone system activity causing higher blood pressure (22). Other causes like blood viscosity in combination with higher vascular tone makes the occurrence of symptoms. Many patients might have suffered from coronary spasm, which has been associated with complex pathological (23). Hypercoagulable tissue-type plasminogen activator, and increased platelet aggregability might be responsible for cardiovascular events. Finally, antithrombotic medication such as aspirin, clopidogrel, and ticlopidine are likely to have low levels in the morning, just before the patient wakes up and takes a new dose (24). When we looked at the baseline characteristics of our patients, high rates of diabetes, peripheral vascular disease, malignancy, and dissection were found. These conditions have been shown to be independent risk factors for stent thrombosis in a study by van Werkum et al (25). Although there is a great body of evidence with regard to the role of triggers in onset of AMI and sudden cardiac death, this is not the case for stent stenosis (26). However, we found that a much larger proportion of patients did not use dual anticoagulants after implantation of a bare-metal stent as is recommended by the American College of Cardiology/ American Heart Association guidelines (27). Acute infections, particularly in the respiratory and urinary tract, might well be triggers of stent related stenosis and thrombois, because they have shown to increase the risk of other adverse cardiovascular events as well (28) Approximately 5% of patients who receive a coronary stent will require noncardiac surgery (NCS) within 1 yr after PCI. As was the case in our study nearly 10% underwent surgical procedures. If surgery is required, the risk of bleeding while on dual antplatelet therapy is increased (31). The risk of perioperative bleeding must be balanced by the risk of stent thrombosis induced by the procoagulant state associated with surgery. The American College of Cardiology–American Heart Association practice guidelines recommend delaying NCS for at least 6 weeks after PCI with BMS. (32). In the early era of bare metal stenting, the mainstay treatment for ISR was repeat PTCA. Balloon angioplasty provided immediate excellent results, but the recurrence of angiographic restenosis within the treated segment remained unacceptably high, ranging from 30% to 55%, with even higher rates observed following treatment of diffuse ISR (29). The high rate of recurrent restenosis following PTCA is best explained by studies demonstrating that lumen dimensions following PTCA to treat ISR are consistently and significantly smaller than after initial stent implantation (30). In any case, the rates of MACEs, repeat PCI, and restenosis remain particularly high after stenting small vessels ranging from 17-27% (33). These data are homogeneous among the entire population and all the subgroups in various trials (33,34). This indirectly underlines the need for devices with improved efficacy in these lesions. While in large vessels (with an RVD <3 mm) the rates of RR and restenosis are nowadays <10%, small vessel treatment does not attain similar results (34). Thus, in light of the results of DES trials, these new devices become very attractive for the treatment of vessels with RVD <3 mm (32). However, due to economic concerns regarding the widespread utilization of DES, it should be interesting to compare, mainly from the point-of-view of cost-effectiveness, systematic DES implantation with an optimal PTCA strategy with provisional stenting, in small vessels. However, despite technological advances and an improved understanding of the restenotic process, the overall rate of in-stent restenosis following bare metal stent implantation still remains high. With the introduction of drug-eluting stents has reduced the incidence of restenosis. The real application of drug-eluting stents in increasingly complex lesion has given way to the even greater clinical challenge of managing drug-eluting stent restenosis. Usual standard treatment of bare metal stent restenosis typically involves placement of a drug-eluting stent. This optimal therapeutic approach to drug-eluting stent restenosis remains less defined. In order to improve results and reduce restenosis, developments in stent design have been augmented by new drug-eluting technologies. Drug-eluting stents (DES) release anti-proliferative agents from their surface with the objective of limiting cell growth around the stent using cytotoxic, cytostatic and other agents. The three key components of a DES are the stent design, the drug eluted and the type of polymer used to coat the stent. Use of DES do result in decrease in the number of times patients had to be re-treated due to blockage of the blood vessel and/or stent. Thus, DES are effective in reducing rates of restenosis but are not superior to standard BMS in terms of decreasing death, myocardial infarction or thrombosis. The increased cost of DES and lack of evidence of their cost-effectiveness means that various health funding agencies are either limiting their use or attempting to regulate use in relation to their price. Although the standard treatment of BMS restenosis typically involves placement of a DES, the optimal therapeutic approach to DES restenosis remains less studied. This issue remains a clinical challenge, and investigation into therapeutic options remains ongoing. As technology develops futuristic approach will likely incorporate novel modalities including drug-coated balloons and novel stent technologies.

Acknowledgement:

We extend our gratitude and thanks to our patient and siblings for their cooperation to participate in the study. We would also like to thank the Directorate of the Government Rajaji Hospital, Madurai Medical College, Tamil Nadu for all the logistic and administrative support.

Conflict of interest:

Authors report no conflicts of interest.

REFERENCES:


FOR MOST DIAGNOSES ALL THAT IS NEEDED IS AN OUNCE OF KNOWLEDGE, AN OUNCE OF INTELLIGENCE, AND A POUND OF THOROUGHNESS
INTRODUCTION:

Carcinogenesis associated with exposure to radiation as late onset complication is known, first reported more than 100 years ago in 1902 by Frieben and in 1907 by Porter and White [15]. Exposures to therapeutic doses of radiation are known to be associated with an increased risk of secondary cancers, although the precise risk remains unknown. Post-radiation sarcomas / Radiation induced Sarcomas (RIS) are rare complications of radiotherapy (RT) that occur within a previously irradiated field after several years of latency [1]. Since 1948, the criteria suggested by Cahan et al. [1] have been the diagnostic basis for post-radiation bone sarcoma. In 1999, Murray et al. [2] proposed the revised criteria which included the following: 1) The radiation must have been given previously, and the sarcoma that subsequently developed must have arisen in the area included within the 5% isodose line; 2) No evidence that the sarcoma was likely to have been present before the onset of irradiation; 3) All sarcomas must be proven histologically and must clearly be of a different pathology than that of the primary condition. Post RT, the cumulative RIS incidence is 3.2 per 1,000 at 15 years (versus 2.3 per 1,000 for primary sarcoma in a population without radiotherapy) [7], comprises around 3% of all soft-tissue sarcomas [6] and 0.5% to 5.5% of all sarcomas [3]. RIS typically occurs ten years after the index breast cancer, but the latency period can be between 3 and 20 years [10]. Because adjuvant RT post breast-conserving surgery plays a significant role in the treatment of early-stage breast cancer [4], sarcomas of the breast, chest wall, sternum, axilla, or supraclavicular region had been reported as a rare complication of RT in breast cancer patients [5,7]. Surgery with widely negative margins remains the primary treatment of RIS. The large size and positive histologic margins post-surgery are responsible for high local relapse rates and short survival. Additional radiation therapy using modern techniques, may be considered to reduce local relapse following surgery alone. Key-words: Breast neoplasms, Radiation-induced neoplasms, Radiotherapy, Sarcoma

Key Messages: Radiation induced Sarcomas (RIS), a rare and aggressive disease, though surgery remains the primary treatment option for localized disease, adjuvant radiotherapy when indicated, brachytherapy is a good option.

CASE REPORT - RADIOTHERAPY

RADIATION SARCOMA AFTER BREAST CANCER TREATMENT

T.N.Vijayasree (1), S.Saravanan (2)

Abstract

We describe the management of a case of post-radiation sarcoma after treatment for breast cancer. Our patient, a 37-year female is a known case of metachronous bilateral carcinoma breast. For left breast, T3N3M0, Modified Radical Mastectomy (MRM) followed by adjuvant chemotherapy and locoregional radiotherapy was given, in 2008. After 8 months, as right sided tumor was T2N0M0, MRM was done and radiotherapy was not given to right chestwall. She presented with a lump in the left infraclavicular region during the follow up in 2016 following which she underwent wide excision of the tumor and brachytherapy catheters were placed for adjuvant treatment. Post operative histopathology revealed a diagnosis of undifferentiated sarcoma with negative resection margins. Due to Larger size of lesion, HDR Brachytherapy, 35Gy in 10 fractions(# 3.5Gy/# twice daily over 5days was administered. Post-radiation sarcomas are rare complications with a poor prognosis. The optimal management of Radiation induced Sarcomas (RIS), a rare and aggressive disease, is controversial. Surgery remains the primary treatment option for localized disease. The large size and positive histologic margins post-surgery are responsible for high local relapse rates and short survival. Additional radiation therapy using modern techniques, may be considered to reduce local relapse following surgery alone. Key-words: Breast neoplasms, Radiation-induced neoplasms, Radiotherapy, Sarcoma

Figure 1.Clinical photograph – pre-op

Please Scan this QR Code to
View this Article Online
Article ID: 2018:05:02:10
Corresponding Author : T.N.Vijayasree
  e-mail: tnvijayasree@gmail.com

1),2)- Department of Radiotherapy Government Royapettah Hospital & Kilpauk Medical College, Affiliated to the Tamilnadu Dr.M.G.R.Medical University.
using modern techniques may be considered to reduce local relapse following surgery alone. The role of adjuvant and neoadjuvant chemotherapy remains uncertain.

**CASE HISTORY:**

A 37-year-old female known case of Carcinoma bilateral Breast presented with a lump in the left infraclavicular area in January 2016 during followup. In 2008 the patient had a history of bilateral breast cancer, Infiltrating Ductal Carcinoma of the Left breast staged T3N3M0 and underwent neoadjuvant chemo (FAC), Lt sided MRM and adjuvant chemo (FAC) and was planned for locoregional RT to left side. She received 50 Gy to the left chest wall and supraclavicular, infrACLavicular and axillary nodal regions using Cobalt-60. RT field borders for drainage field were as follows, superiorly-thyrocricoid groove, inferiorly - upper border of chest wall field, medially 1cm across the midline and laterally vertical line at the level of the anterior axillary fold. As right sided tumor was T2N0M0, MRM was done and radiotherapy was not given to right chestwall. In January 2016, seven years post RT to Left Chest wall, and nodal drainage areas the patient presented with a 7x6cm non tender, mobile swelling over left chest wall in the infraclavicular region (within the previously irradiated drainage field) (Fig.1). FNAC revealed a Spindle cell (fibroblastic) neoplasm. USG abdomen and other metastatic workup were normal, and the CECT Chest revealed a hyperintense lesion in the subcutaneous plane without any evidence of pulmonary metastasis (Fig.2). Considering the above clinical and diagnostic features, the patient was planned for Wide local excision (WLE) and Brachytherapy (BT). On WLE the frozen biopsy revealed negative margins, as the size of the tumor was large, BT catheters were placed in the tumor bed (Fig 3) in the form of single planar implants, for adjuvant treatment and the wound closed. Surgical HPE revealed features of Undifferentiated Sarcoma with all margins free of tumor. After CT simulation, BT Treatment planning (TP) was done using Oncentra TP system (Fig 4). The patient received High Dose Rate (HDR) BT using Iridium-192 to a total dose of 35Gy in 10 fractions, 3.5Gy/Fr twice daily over 5days from 01/03/2016 to 05/03/2016 and is presently on regular follow up.

**DISCUSSION:**

In the case described above, 1) Radiation was given previously, and the sarcoma has subsequently developed after 7Yrs, within the irradiated field, over the 5% isodose line, at the border of drainage field. 2) There is no evidence that the sarcoma was likely to have been present before the onset of irradiation. 3) The present lesion has been proven histologically and is of a different pathology than that of the primary condition as per Cahan’s criteria [1,2]. According to a broad retrospective study of 16,705 patients treated for breast cancer, adjuvant RT significantly increases the rate of sarcomas and lung cancers when compared with a non-RT group (p=0.020 and p=0.022, respectively) [8]. The cumulative incidence of RIS was 0.27% and 0.48% at 10 and 15 years, respectively. Another study using surveillance, epidemiology, and result data reported incidence at 15yrs as 0.32% [7]. The mean latency periods of the above two studies were 8.7 and 7.5 years, respectively, which was similar to our case (7yrs). Higher radiation dose increases the risk for soft tissue and bone sarcomas after breast cancer [9]. Compared with patients who receive <14 Gy, the odds ratios are 1.6 and 30.6 for patients who receive 14 to 44 Gy and >44 Gy at the site of the sarcoma, respectively. According to this finding, the patient of the present report, who received 50 Gy at the site of sarcoma, was at high risk for developing post-radiation sarcoma.
The prognosis of post-radiation sarcomas is poor, with 5-year survival rates of 27% to 36% [5,7,8]. The standard treatment is surgical resection, but this is often not possible due to inoperable tumor locations [5,8,11]. Only complete surgical resection can guarantee long-term survival [11]. Radical resection with negative histological margins (R0) is the treatment of choice for localized disease. Previous irradiation impairs anatomic and tumor planes, preventing surgeons from appreciating right tumor margins. This further reinforces the necessity for aggressive and wide resection, especially considering that a positive surgical margin will reduce survival by nearly half (12).

In the two larger series of RIS, it appears difficult to obtain microscopically negative resection (R0) (12, 13). This data indicates that achieving negative histological margins is challenging in this disease. As a consequence, local relapse rates are high at about 45% and are a major contributor to mortality (12, 13). Additional adjuvant RT using modern techniques may be considered, but there are concerns about toxicity, as repeated high RT dose is often impossible, respecting the surrounding normal tissue. Data from case reports have been published on hyperfractionation for breast angiosarcoma post-radiation and breast-conserving therapy (BAPBCT) (14) showing certain efficacy. BAPBCT tumors have a high growth rate, making them more likely to repopulate between daily fractions of radiotherapy. The use of multiple daily fractions might, therefore, prevent repopulation from occurring (14). Hence, in our case we tried with Interstitial Brachytherapy, which is a better conformal radiotherapy, with HDR, two fractions per day, giving a total dose of 35Gy in 10 fractions, allowing very minimal dose to adjacent normal tissues.

CONCLUSION:

Since the majority of cancer patients receive radiotherapy, it is important that clinicians are aware of the potential development of RIS, which can occur decades after radiation. Any abnormality need to be biopsied, and if a sarcoma is detected, the treatment of choice for RIS is surgical resection with negative margins. Since they are locally aggressive, Adjuvant Radiotherapy is needed. Interstitial Brachytherapy is a good option to address microscopic disease with reduced normal tissue toxicity, thus reducing local recurrence.

REFERENCES:


INTRODUCTION:

Basal cell carcinoma is most commonly seen in the face. It has several clinical appearances, among which nodular and superficial types are the most common forms. Nodular BCC appears mostly in head and neck regions, while its occurrence in lower legs is extremely rare with incidence of <5% of BCCs. We report a case of basal cell carcinoma in the lower extremity in a 62 year old female.

CASE HISTORY:

A 62 year female presented with complaints of painless hyperpigmented nodular growth in her left leg for a period of one and a half years. Patient was referred from the department of dermatology. On clinical examination there was a 1.5cm blackish hyper pigmented lesion adjacent to the shin of tibia right middle third of leg. There was no regional lymphadenopathy. Therefore a clinical diagnosis basal cell carcinoma was made. So after evaluation anesthetic fitness, we proceeded with wide local excision with a margin of 1cm clearance in three dimension was given and the resultant defect abutting the bone was covered with a Type II Keystone Perforator flap.

HISTOPATHOLOGY:

Post operative specimen was reported as pigmented variant BCC with resected margins free and histopathological picture is shown as below.

DISCUSSION:

Patient is under follow up for the past six years with no complaints.

Basal cell carcinomas exhibit several markedly different subtypes and occur at different anatomical locations. Approximately 80% occur on the head and neck, with the rest mainly on the trunk and lower limbs, particularly in women. The distribution of basal cell carcinoma may be changing, with a recent increase in truncal tumors described. Early basal cell carcinomas are commonly small, translucent or pearly with raised areas through which dilated vessels may show (telangiectasia). The classic form is the rodent ulcer, which has an indurated edge and ulcerated centre. This tumour is slow growing but, if neglected, can spread deeply to cause great destruction. Patients with basal cell carcinoma have an increased risk of developing further BCC. A skin biopsy (most often a shave biopsy is sufficient) may be necessary to confirm the diagnosis and is often required to determine the histologic subtype of BCC. A punch biopsy may be used to obtain a thick specimen, especially when the clinical suspicion of a BCC is still present after shave biopsy results are negative.

Lower limb being not sun exposed like head and neck is very rare for BCCs to develop. However in this case patient
is an agricultural worker who has been exposed to sun for a prolonged period of time.

**CONCLUSION:**

This case is presented for its rarity of occurrence in lower limb. Wide local excision with HPE controls and frozen section is better to prevent recurrence. In contrast, field therapies treat a generalized area but do not define the status of margins. Standard surgical excision is the preferred treatment for most BCCs. In areas like lower limbs where excision would leave a defect, reconstruction plays a pivotal role. Here we have covered the post excision area with a Type II Keystone Perforator flap.

**REFERENCES:**

INTRODUCTION:

The workup of a patient with unprovoked thrombotic vascular events is always challenging for the treating physician. The routinely prescribed battery of tests is difficult to administer completely and often turn out to be negative, complicating the situation further. We describe here, the case of a previously healthy male who presented with unprovoked extensive pulmonary embolism (PE). At the time of presentation, he had no clinical features suggestive of PTB. However, during the workup molecular tests revealed relapse of TB.

CASE HISTORY:

A 48-year-old previously healthy male presented with acute onset of shortness of breath and chest pain. He was diagnosed with Right sided extensive pulmonary embolism (PE). In the absence of any predisposing factors, an extensive workup for unprovoked thrombosis was done. Patient had history of PTB completed ATT. Patient had relapse and diagnosed with PTB with CBNAAT, although complications are commonly associated with CNS, it is unusual for PE to be the presenting feature in this patient. Key-words: Pulmonary embolism, Tuberculosis, Shortness of breath

Laboratory investigations revealed, hemoglobin of 16 g/dL, total leucocyte count 9,500 cumm, and platelet count of 1.8 lakh/mm³. Serum urea was 26 mg/dL and serum creatinine 1.2 mg/dL, serum sodium was 136 mEq/L and potassium 3.9 mEq/L. Liver function test relieved a total bilirubin of 0.9 mg/dL, AST was 33 U/L, and ALT was 42 U/L. As there was no obvious predisposing factor for PE, tests for the etiology of the thrombophilic state were ordered. VDRL and rapid plasma reagin tests for syphilis were nonreactive. Anti-thrombin III (AT-III) levels were low - 280 mg/L (normal - 260–378 mg/L). Lupus coagulant and JAK2...
mutation was negative and so were anticardiolipin antibodies (1.49 GPL units). HIV antibodies were nonreactive, sputum AFB negative, molecular tests (CBNAAT) sent which turned positive. He was started on subcutaneous LMWH and warfarin therapy as per the standard recommendations, ATT cat II started, pt improved, anticoagulants titrated according to INR

**DISCUSSION:**

Tuberculosis (TB) is a major killer worldwide mainly affecting people of developing countries [1]. Our case shows bilateral pulmonary embolism associated with pulmonary tuberculosis, an association which has been reported previously [2, 3]. However, this complication of tuberculosis is very rare and the thrombogenic potential of tuberculosis has been infrequently reported in literature. However, patients with TB are predisposed to venous thromboembolism due to several pathophysiologic mechanisms, affecting all three parts of the Virchow’s Triad [4–6]. Our patient did not have any risk factors for thromboembolism and had a low clinical probability for pulmonary embolism [7].

The first report of an association between tuberculosis and pulmonary embolism was in 1950, in which pulmonary embolism was found 27 times in 111 subjects of active tuberculosis (24.3%) from 634 autopsies compared to 23.1% incidence of pulmonary embolism in the entire series [3]. Other reports also demonstrate that thrombotic phenomena inpatients with pulmonary TB occur in other sites such as the lower extremity veins [2], hepatic veins [8] and cerebral venous sinuses [9]. The association between tuberculosis and inflammation, hemostatic changes and a hypercoagulable has been recently established [5, 10]

**CONCLUSION:**

This case report highlights patients with PTB are at increased risk of thrombotic events; pulmonary embolism in the case of our patient. This is an entity that is rarely taken into consideration, which might pose a diagnostic dilemma and could play a major role in the outcome of the patient. Clinicians bearing this in mind, especially in developing country settings, could avert eventual thromboembolic events in Tuberculosis.

**Conflict of Interest:**

There are no conflict of interest

**Financial support and sponsorship**

Nil.

**REFERENCES**

**INTRODUCTION:**

PKU is an autosomal recessive disorder involving phenylalanine metabolism. [1] Phenylalanine is an essential amino acid. It is degraded by Phenylalanine hydroxylase (PAH) into tyrosine. [2] Mutations in PAH gene results in decreased catabolism of phenylalanine causing accumulation of phenylalanine in the blood. Excess of phenylalanine in brain causes intellectual problem, developmental delay and seizure. It is a preventable cause of mental retardation. Hence an early diagnosis and management is crucial.

**CASE HISTORY:**

18 months old male child second born for third degree consanguineous parents presented with global developmental delay [Head control-7 months, roll over-8 months, sit with support –11 months, sit without support-17 months, stands with support-18 months and the child is not able to speak] and myoclonic jerks in the form of head dropping and jerky movements of both upper and lower limbs lasting for less than a second for the past 1 month. Family history was negative. On examination the child was alert. Head circumference -47cm (15th-50th percentile), weight-11kg (15th -50th percentile), and length-82 cm (15th-50th percentile) as per WHO growth chart. Child had hypopigmented hair and fair skin (Fig 1). There was no neurocutaneous marker and no facial dysmorphism. Fundus was normal. Cranial nerves and spinal motor system examination were normal. MRI-brain revealed mild T2 w/Flair hyperintensity in bilateral periventricular frontoparietal and peritrigonal regions (Fig 2). Diffusion restriction was noted in both basal ganglia (Fig 3). MR spectroscopy showed a peak at 7.5 ppm suggestive of phenylalanine (Fig 4).

Sleep EEG revealed bilateral paroxysmal bursts of sharp wave and spike wave complexes in a delta background. Urine ferric chloride test was positive. Blood tandem mass spectrometry showed elevated level of phenylalaline-1337.28 μmol/L[reference:<165 μmol/L] and Phenylalanine/tyrosine ratio of 20.82[reference:<2.00] confirming the clinical diagnosis of PKU.[3] Parents were counselled to give phenylalanine restricted diet and phenylalanine restricted formula feeds and to avoid food with high phenylalanine content like meat, dairy products,
nuts, seeds, legumes, soyafoods and biscuits. Apples, oranges, bananas, grapes, carrot, cucumber, tomatoes, rice (maximum 45 grams/day) can be given. [4] Phenylalanine allowed per day in diet is less than 400 mg/day. [5] Child was also treated with levitiracetam, clonazepam and sodium valproate for seizure control.

**DISCUSSION:**

PKU is an inborn error of phenylalanine metabolism caused by deficiency of PAH or its cofactor tetrahydrobiopterin (BH4). The PAH gene is located in chromosome 12q23.2. [6] The lack of PAH or its cofactor BH4 leads to accumulation of phenylalanine leading to hyperphenylalanemia. The incidence of PKU is highest amongst Caucasians, occurring...
in approximately 1 in 10,000 births. [7] In India only very few case reports are available on PKU. Phenylalanine is raised to about 10 times the normal value in PKU. [8] Other metabolites of phenylalanine such as phenyl lactate, phenyl pyruvate get elevated. These metabolites give musty odour to urine. The positive ferric chloride test (blue green) in urine screening test is due to the excess of phenylpyruvic and phenyllactic acids in urine. [9]

CONCLUSION:

Hypopigmented hair in a child with developmental delay or mental retardation, one should suspect the possibility of PKU. PKU is one of the preventable causes of mental retardation. Early diagnosis and treatment will prevent the brain damage.

REFERENCES:

12. Miyamoto M, Fitzpatrick TB: Competitive inhibition of mammalian tyrosinase by phenylalanine and its relationship

AIMS AND SCOPE:

Stanley Medical Journal, is an official publication from Govt.Stanley Medical College & Hospital, Chennai. It publishes original Research articles/Case Reports/Scientific papers focusing on Anatomy, Physiology, Pharmacology, Pathology, Biochemistry, Ophthalmology, ENT, Community Medicine, General Medicine, Surgery, Obstetrics & Gynaecology, Paediatrics, Cardiology and other specialties; and invites annotations, comments, and review papers on recent advances, editorial correspondence, news and book reviews. Stanley Medical Journal is committed to an unbiased, independent, anonymous and confidential review of articles submitted to it. Manuscripts submitted to this Journal, should not have been published or under consideration for publication in any substantial form in any other publication, professional or lay. All manuscripts will become the property of the Stanley Medical Journal.

ADDRESS FOR SUBMISSION:

Submit article typed in double space (including references), with wide margins as electronic copy through online manuscript submission system at our website www.smj.org.in. We have an online unbiased processing system and the authors can login any time to view the status of any submitted article. Authors need to register as a new author for their first submission.

THE EDITORIAL PROCESS:

Manuscripts submitted at our website www.smj.org.in, will be reviewed for possible publication with the understanding that they are being submitted to one journal at a time and have not been published earlier or under simultaneous consideration for publication by any other journal. Upload the text of the manuscript, tables and individual figures as separate files. All manuscripts submitted will be duly acknowledged, however the journal will not return the unaccepted manuscripts. Each manuscript received will be assigned a manuscript number, which must be used for future correspondence. All articles (including invited ones) will be usually evaluated by peer reviewers who remain anonymous. The authors will be informed about the reviewers’ comments and acceptance/rejection of the manuscript. Accepted articles would be edited to the Journal’s style. Proofs will be sent to the corresponding author which has to be returned within one week. Corrections received after that period may not be included. Accepted manuscripts become the permanent property of the Journal and may not be reproduced, in whole or in part, without the written permission of the editor.

MANUSCRIPT PREPARATION:

American spellings should be used. Authors are requested to adhere to the word limits. Editorial/viewpoint should be about 1500 words, and continuing medical education/review articles should be limited to 4500 words. Original articles should limit to 3000 and short articles to 1500 words, letters and book review should be limited to 750 and 500 words respectively. This word limit includes abstract, references and tables etc. Articles exceeding the word limit for a particular category of manuscript would not be processed further. All articles should mention how human and animal ethical aspect of the study was addressed. Whether informed consent was taken or not? Identifying details should be omitted if they are not essential. When reporting experiment on human subjects, authors should indicate whether the procedures followed were in accordance with the Helsinki Declaration of 1975, as revised in 2000. Each of the following sections should begin on a separate page. Number all page in sequence beginning with the title page.

Title Page:
This should contain the title of the manuscript, the name of
all authors, a short title (not more than 20 words) to be used as the running title, source of support in the form of grants, equipments, drugs etc., the institution where the work has been carried out and the address for correspondence including telephone, fax and e-mail. One of the authors should be identified as the in-charge of the paper who will take responsibility of the article as a whole.

**Abstract:**
This should be a structured condensation of the work not exceeding 250 words for original research articles and 150 words for short articles. It should be structured under the following headings: background, objectives, methods, results, conclusions, and 5-8 keywords to index the subject matter of the article. Please do not make any other heading

**Text:**
It must be concise and should follow the IMRAD format: Introduction, Material and Methods, Result, Discussion. The matter must be written in a manner, which is easy to understand, and should be restricted to the topic being presented. If there is no separate paragraph of conclusion, the discussion should end in conclusion statement. Each Table and Figure/Picture should be on a separate page and should be given at the end of the manuscript. Please do not insert tables etc within the text.

**ACKNOWLEDGMENT:**
These should be placed as the last element of the text before references. Written permissions of persons/agency acknowledged should be provided.

**Conflict of interest:**
A brief statement on source of funding and conflict of interest should be included. It should be included on a separate page immediately following title page.

**Contribution of Authors:**
Briefly mention contribution of each author in multi author article.

**References:**
In citing other work only reference consulted in the original should be included. If it is against citation by others, this should be so stated. Signed permission is required for use of data from persons cited in personal communication. ANSI standard style adapted by the National Library of Medicine
(NLM) should be followed. Consult http://www.nlm.nih.gov/bsd/uniform_requirements.html. References should be numbered and listed consecutively in the order in which they are first cited in the text and should be identified in the text, tables and legends by Arabic numerals as superscripts in brackets. The full list of reference at the end of the paper should include; names and initials of all authors up to six (if more than 6, only the first 6 are given followed by et al.); the title of the paper, the journal title abbreviation according to the style of Index Medicus ( http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=journals ), year of publication; volume number; first and last page numbers. Reference of books should give the names and initials of the authors, book title, place of publication, publisher and year; those with multiple authors should also include the chapter title, first and last page numbers and names and initials of editors. For citing website references, give the complete URL of the website, followed by date of accession of the website. Quote such references as - author name, title of the article, the website address, and date of accession.

**Journals:**

**Book:**


Papers accepted but not yet published should be included in the references followed by ‘in press’. Those in preparation, personal communications and unpublished observations should be referred to as such in the text only.

**Illustration/Pictures:**
These should be of the highest quality. Graphs should be drawn by the artist or prepared using standard computer software. Number all illustrations with Arabic numerals (1,2,3,...) and include them on a separate page on the document.

**Legends:**
A descriptive legend must accompany each illustration and must define all abbreviations used therein.

**Tables:**
These must be self-explanatory and must not duplicate information in the text. Each table must have a title and should be numbered with Arabic numerals. Each table should be typed in double space, on a separate sheet of paper. No internal horizontal or vertical lines should be used. All tables should be cited in the text.

**Abbreviation:**
As there are no universally accepted abbreviations authors should use familiar ones and should define them when used first in the text.

**TEMPLATES:**
Ready to use templates are made to help the contributors write as per the requirements of the Journal. You can download them from www.smj.org.in save the templates on your computer and use them with a word processor program to prepare the draft.

**For any queries contact:**
Dr. Sabari Selvam
Associate Editor
Mobile : 9894080424
Email : editor@smj.org.in
Our Benefactors

Stars in Health Education Foundation

Founded by

Dr. Sadasivam Suresh
&
Dr. Anuradha Suresh

*This is a paid advertisement & the journal does not in any way endorse the views of the advertiser*