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Academics the backbone of activities of a technical association

Eyes cannot see what the mind does not know. Progress that is bulleting in the field of technology be it medical or engineering has made ripples in the minds of technologists to get the maximum possible out of the bolus of developments. Dissipation of knowledge in these fields is no more limited to books only.

Since 70’s the trends in knowledge in technology has been dissipated through different modes like CMEs, symposia and workshop. Time has shown us the experience that in this busy world one has to think of his social and physical establishment. Society is engulfed in trauma of disharmony in relationships and recently engulfed life style diseases which has become a great concern for its denizens.

So finding time to update ourselves is cumbersome and time consuming. Gone are the days when we limited ourselves to theory books. Now the progress has taken a great stride to acquire knowledge from internet, CDs of technological whim of varieties of great works demonstrated by great people in their fields.

Taking the pace of mind into the development of science and technology, Medical Council of India has included credit points for attending and participation in CMEs, Workshops and for publication in different leading journals be it national or international or Association Journal.

Now the NITI AYOG constituted by the Govt. of India have realised that there is a need for assessing the updated knowledge of MBBS Graduates before they are registered for medical practice. There is also a pipeline thought by medical law enforcing agencies that the doctors working in the peripheral hospitals are required to update their knowledge which again demands for assessment at their level ones in intervals.

This has led to think over the pattern of updating our knowledge. Hence IMA has already involved itself in academic programmes like Monthly CMEs which is a agenda of all branches spread over the state. We are engaged in conducting different reorientation programmes on management of Tuberculosis, Diabetes and Communicable disease under different programmes of State and Central Government.

Coming to our publication front, we have a Journal of Indian Medical Association at National and state level. My predecessor has tried his best to uplift the State Journal to highest level which off-course is a great achievement. But when it comes to our recognition as a National Indexed Journal, we have to strive hard to get our Journal mentioned.

So this task has to be done within one year that is left with me. In the present scenario getting an ISSN number is even difficult which my predecessors have been able to achieve to get an index has become a cumbersome job because of a tough competition in view of MCI making it compulsory in all the 423 medical colleges in the country, be it a government or private institution. It has become mandatory to have publication of research articles in Indexed Journals. Tough is the pipe line thought of MCI to make linkage of publications for promotion in state and peripheral services.

Lets hope the best from time ahead with members of IMA coming up with publications from all branches from all corners of the state.

Prof.(Dr) Debaprasad Mohanaty
Editor OMJ
Cancer Cervix – A poor woman’s bane

Cancer Cervix has been a cause of great distress to the women in their reproductive years creating orphans and breaking down families. It is no doubt a preventable cause of death yet to be prevented.

“Cervical cancer is a leading cause of cancer deaths in India. 67477 deaths reported annually from cervical cancer in India alone” CDC 2015. World over cancer of Cervix Uteri remains the 3rd most common cancer in women. (Breast & Colorectum being the 1st two respectively) Globocan 2012. Incidence of cervical cancer is stated at 527624 (7.9%) and mortality 265872 (7.5%) In India deaths due to cancer cervix have outnumbered the deaths due to PPH. Yet............

The NPCDCS has taken up the issue of cervical cancer in many districts in Odisha but it is again not a very focused programme unlike NACO. In spite of effective screening methods, cervical cancer continues to be a major public health problem. New methodologies of cervical cancer prevention should be made available and accessible for women of all countries through well organised programmes. The last decade has seen remarkable progress in understanding Cervical Carcinogenesis. An overwhelming body of evidences show that infection with various high risk Human Papilloma Virus (HPV) is the central and necessary cause for development of Cervical Cancers & its precursors. l HPV DNA testing identifies women at risk for developing cervical neoplasia without the inherent subjectivity to cytology.

In light of strong evidence, Asian countries such as Bhutan, Malaysia, Philippines, Brunei, Laos, Nepal (demonstration project in Chitwan and Kaski districts) and Bangladesh (demonstration project in Gazipur district) and Sri Lanka have introduced the HPV vaccine in their national immunization programs or have adopted policy to do so by 2017. High quality recommendation from a healthcare provider is the most important factor in parents choosing to vaccinate their child.

The WHO recommends that adolescent girls 9-13 years of age be vaccinated because the vaccine is highly immunogenic at this age and girls are typically not yet exposed to the virus. The recently published results of a study from India that administered approximately 35,000 doses in girls 10-18 years of age with a 4-year follow-up reported no serious adverse events attributable to the HPV vaccine. Even after nearly 10 years of use there is no evidence of waning vaccine effectiveness and no breakthrough cases (Precancerous cervical lesions caused by vaccine type HPV in vaccinated women) have been reported.

Regardless of HPV vaccination status, cancer screening by Pap test, visual inspection with acetic acid (VIA) and/or HPV testing are also recommended as the vaccine does not protect against all high risk HPV types.

Combining HPV vaccine with screening will have the greatest impact on reducing the future burden of cervical cancer.

Dr. Bhagyalaxmi Nayak
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Alteration in Serum Lipid Profile Patterns in Patients of Oral Submucous Fibrosis

Neeta Misra¹, Anuj Maheshwari², Shivani Pandey³, Pradyumna Misra⁴, Amanpreet Kaur⁵

Abstract:
Background: Altered lipid profile patterns have been associated with pre-malignancies and malignancies because lipids play a vital role in the maintenance of cell integrity. Tobacco carcinogens induce generation of free radicals and reactive oxygen species, which cause lipid peroxidation. Because of the lipid peroxidation, there is a greater utilization of lipids for new membrane biogenesis. Hence the present study was carried out to determine the alterations, if any, in the serum lipid profile of subjects with Oral submucous fibrosis (OSMF).

Materials and methods: The study included 25 patients with oral submucous fibrosis and 25 patients having tobacco habits with no OSMF. Serum lipids, including (i) Total cholesterol, (ii) LDL cholesterol (LDLC), (iii) HDL cholesterol (HDLC), (iv) VLDL cholesterol (VLDLC) and (v) Triglycerides, (vi) TC/HDL Cholesterol ratio, (vii) LDL/HDL ratio were analyzed using spectrophotometry kits.

Results: Our findings suggest that Decrease in plasma total cholesterol, triglycerides, HDL, LDL, in the subjects with the OSMF as compared to the controls was statistically significant. VLDL, TC/HDL and LDL/HDL ratio was significantly higher among the cases than controls.

Conclusion: To conclude that the lower serum lipid status may be considered as a useful indicator for initial changes occurring in the neoplastic cells.

Keywords: Oral submucous fibrosis, serum lipid profile, areca nut.

Introduction:
Oral submucous fibrosis (OSMF) is a chronic, debilitating disease characterised by juxtaepithelial fibrosis of the oral cavity.[¹] Although occasionally preceded by, or associated with, formation of vesicles, it is always associated with a juxtaepithelial inflammatory reaction followed by fibroelastic changes of the lamina propria and epithelial atrophy that leads to stiffness of the oral mucosa and causes trismus and an inability to eat.[²]

It is a chronic, progressive, scarring disease associated with the chewing of areca nut, an ingredient of betel quid and predominantly affects the people of South- East Asian origin. This condition was described first by Schwartz (1952) while examining five Indian women from Kenya, to which he gave the descriptive term ‘atrophia idiopathica’ tropica) mucosae oris. Later Joshi in 1953, redesignated the condition as oral sub mucous fibrosis, implying predominantly its histological nature. It is characterised by burning sensation in the mouth while consuming spicy food, appearance of vesicles in the cheek and palate and fibrosis of the oral mucosa resulting in difficulty in mouth opening. The WHO definition of an oral precancerous condition –”a generalized pathological stage of the oral mucosa associated with a significantly increased risk of cancer,” describes the characteristics of OSMF.[³]

The predominant age group affected is 20-40 years.[⁴] The pathogenesis of the disease is not well established, but the cause of OSMF is believed to be multifactorial. Factors include areca nut chewing, ingestion of chillies, genetic and immunologic processes, nutritional deficiencies, and other factors. Iron deficiency anemia, vitamin B complex deficiency, and malnutrition are promoting factors that derange the repair of the inflamed oral mucosa, leading to defective healing and resultant scarring.[⁵]
Lipids are major cell membrane components essential for various biological functions, including cell growth and division of normal and malignant tissues. Variations in tissue/blood cholesterol levels in diagnosis and treatment of various diseases has been studied by several workers.\cite{6,7,8} There is compelling evidence to implicate the habitual chewing of areca nut in the development of OSMF.\cite{7}

The major alkaloid in areca nut arecoline undergoes nitrosation and gives rise to N Nitrosamine, which might have cytotoxic effect on the cells.\cite{9} This may induce the production of free radicals and reactive oxygen species which are responsible for high rate peroxidation of polyunsaturated fatty acids, this peroxidation further releases peroxide radicals which affect essential constituents of the cell membrane and might be involved in tumorigenesis. Because of the lipid peroxidation, there is a greater utilization of lipids, including total cholesterol, lipoproteins and triglycerides for new membrane biogenesis. Cells fulfil these requirements either from circulation by synthesis through the metabolism or from degradation of major lipoprotein fractions, like VLDL, LDL or HDL.\cite{10}

Lower blood lipid levels have been associated with various cancers.\cite{11} However, only a few studies have been carried out on serum lipid profiles in precancerous conditions. Considering this, the present study was planned to evaluate the serum lipid profile in OSMF patients as the change in lipid levels may have a diagnostic and prognostic role in the potentially malignant lesions.

**Material and Methods**

The study was conducted in the Department of Oral Medicine and Radiology, Babu Banarasi Das College of Dental Sciences, Lucknow. Total sample size of 50 subjects was chosen with study group consisting of a total of 25 patients having OSMF with tobacco habit and the control group consisted of 25 age and sex matched individuals without OSMF with tobacco habit who have come for some other problem related to teeth.

Subjects with clinically diagnosed OSMF with age 25-55yrs were included in the study. Patients who have undergone or on treatment for oral submucous fibrosis, Patients with systemic disease like diabetes, cardiac problems, obesity or any known systemic disease that can alter lipid profile or patients with previous or current history of lipid lowering medications were excluded from present study.

**Method of examination and confirmation of clinical diagnosis**

The patients were explained in detail about the study and the procedure they were subjected to. A formal informed written consent was obtained. Examination of the patients was carried. Routine hematological examinations (to ascertain bleeding time, clotting time, fasting blood sugar levels, hemoglobin count and erythrocyte sedimentation rate) were done for all subjects to rule out any systemic diseases. A comprehensive history was obtained from the patients with reference to their habits and patients with burning sensation, difficulty in mouth opening were clinically diagnosed as OSMF according to khanna and Andrade classification (1995)

**Collection of Venous blood**

Under aseptic conditions, 5 ml of fasting blood sample will be obtained by venipuncture of the median cubital vein. Venous blood was withdrawn with the help of a 5 ml disposable syringe and a 24 gauge disposable needle, into plain vacuettes. These samples were allowed to clot for 30 minutes and then the serum will be separated by centrifugation at 3000 rpm for 15 minute to get a clear serum sample which is separated from the clot and transferred to a disposable vial for assay. The estimation was performed within 3 hours of receiving the samples by using an appropriate kit and (quantitated for total serum cholesterol, LDL, VLDL, HDL, triglycerides, TC/HDL Cholesterol ratio, LDL/HDL ratio using a spectrophotometric methods.

Data was tabulated and subjected to Statistical analysis using Chi- square test, which was performed to compare mean values of the parameters. The SPSS 16.0 version (Chicago, Inc., USA) was used to ascertain the results. p-value < 0.05 was considered to be statistically significant.

**Results**

The study comprised of 50 patients who were divided into 2 groups. In Group I (OSMF group), total number of patients were 25 out of which 24 were male (96%) and 1 female (4%) subject. In Group II (control
The total number of patients was 25 out of which all were male subjects.

More than one third of the cases (40%) and 32% of controls were <30 years of age. However, 24% cases and 40% controls were between 30-40 years of age. The mean age of the cases and controls was 36.40 (±10.01) and 34.52 (±8.06) years respectively. The difference in the age between cases and controls was statistically insignificant (p>0.05). Majority of the cases and controls were males and the difference statistically insignificant (p>0.05).

### Table-1: Age and gender distribution of cases and controls

<table>
<thead>
<tr>
<th>Age and gender</th>
<th>Cases (n=25)</th>
<th>Controls (n=25)</th>
<th>p-value¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>10</td>
<td>40.0</td>
<td>8</td>
</tr>
<tr>
<td>30-40</td>
<td>6</td>
<td>24.0</td>
<td>10</td>
</tr>
<tr>
<td>&gt;40</td>
<td>9</td>
<td>36.0</td>
<td>7</td>
</tr>
<tr>
<td>Mean±SD</td>
<td>36.40±10.01</td>
<td>34.52±8.06</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24</td>
<td>96.0</td>
<td>25</td>
</tr>
<tr>
<td>Female</td>
<td>1</td>
<td>4.0</td>
<td>0</td>
</tr>
</tbody>
</table>

Graph. 1: Age and gender distribution of cases and controls
Graph. 1: 40% of the cases and 32% of controls were <30 years of age. However, 24% cases and 40% controls were between 30-40 years of age and 36% of cases and 28% of controls were above 40yrs of age. 96% of the males had abusive habit along with the lesion present whereas 100% males were there with abusive habit with no lesion. Only 4% of females with abusive habit and lesion were present.

Table-2: Distribution of tobacco habit of OSMF cases and controls

<table>
<thead>
<tr>
<th>Tobacco habit</th>
<th>OSMF Cases (n=25)</th>
<th>Controls (n=25)</th>
<th>p-value1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Smokeless tobacco</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25</td>
<td>100.0</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0.0</td>
<td>7</td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gutkha</td>
<td>25</td>
<td>100.0</td>
<td>17</td>
</tr>
<tr>
<td>Pan</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0</td>
<td>0.0</td>
<td>9</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>100.0</td>
<td>16</td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cigarette</td>
<td>0</td>
<td>0.0</td>
<td>9</td>
</tr>
</tbody>
</table>

1Chi-square test, *Significant, Not applicable

Table-2 presents the distribution of tobacco habit of the cases and controls. All OSMF cases and 72% controls were using smokeless tobacco. The Gutkha was used by all the OSMF cases and 94.4% controls. None of the OSMF cases and 36% of controls were smokers.

Graph. 2: Distribution of tobacco habit of OSMF cases and controls

Graph. 2: Distribution of tobacco habit of OSMF cases and controls
Table-3: Duration use of tobacco habit of the cases and controls

<table>
<thead>
<tr>
<th>Duration in years</th>
<th>Cases (n=25)</th>
<th>Controls (n=25)</th>
<th>p-value&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>&lt;5</td>
<td>7</td>
<td>28.0</td>
<td>20</td>
</tr>
<tr>
<td>≥5</td>
<td>18</td>
<td>72.0</td>
<td>5</td>
</tr>
<tr>
<td>Mean±SD</td>
<td>6.40±2.87</td>
<td>3.08±1.44</td>
<td></td>
</tr>
</tbody>
</table>

Table-3 depicts the duration of tobacco habit of the cases and controls. The duration of tobacco habit was <5 years in 28% of the cases and 80% of controls. However tobacco habit was >5 years was in 72% of the cases and 20% of control. The average duration of using tobacco was significantly higher among the cases than controls.

Graph. 3: Duration use of tobacco habit of the cases and controls

Graph. 3: shows the duration of tobacco habit which was <5 years in 28% of the cases and 80% of controls. However tobacco habit was >5 years was in 72% of the cases and 20% of control. The duration of using tobacco was significantly higher among the cases than controls.

Table-4: Alteration of Lipid levels of the cases and controls

<table>
<thead>
<tr>
<th>Lipid levels</th>
<th>Cases (Mean±SD)</th>
<th>Controls (Mean±SD)</th>
<th>p-value&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholesterol (TC) mg%</td>
<td>122.2±9.77</td>
<td>151.0±21.21</td>
<td>0.0001*</td>
</tr>
<tr>
<td>Triglycerides (TG) mg%</td>
<td>76.5±65.22</td>
<td>129.0±43.54</td>
<td>0.002*</td>
</tr>
<tr>
<td>HDL mg%</td>
<td>30.7±7.48</td>
<td>52.9±7.19</td>
<td>0.0001*</td>
</tr>
<tr>
<td>LDL mg%</td>
<td>73.2±11.64</td>
<td>93.8±11.85</td>
<td>0.0001*</td>
</tr>
<tr>
<td>VLDL mg%</td>
<td>29.2±11.09</td>
<td>27.5±9.06</td>
<td>0.46</td>
</tr>
<tr>
<td>TC/HDL</td>
<td>4.1±0.97</td>
<td>3.5±0.68</td>
<td>0.01*</td>
</tr>
<tr>
<td>LDL/HDL</td>
<td>2.5±0.74</td>
<td>2.1±0.36</td>
<td>0.02*</td>
</tr>
</tbody>
</table>
**Table-4** : shows the lipid levels of the cases and controls. The TC was significantly \((p=0.0001)\) lower among the cases \((122.24\pm9.77)\) compared with controls \((151.00\pm21.21)\). The decreased level of TG, HDL and LDL were also observed among the cases than controls. However VLDL level was higher among the cases than control. TC/HDL and LDL/HDL ratio was significantly higher among the cases than controls.

<table>
<thead>
<tr>
<th>Lipid</th>
<th>Cases</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholesterol (TC) mg/dl</td>
<td>122.24</td>
<td>151.00</td>
</tr>
<tr>
<td>Triglycerides (TG) mg/dl</td>
<td>76.58</td>
<td>129.00</td>
</tr>
<tr>
<td>HDL mg/dl</td>
<td>52.92</td>
<td>30.72</td>
</tr>
<tr>
<td>LDL mg/dl</td>
<td>73.24</td>
<td>92.84</td>
</tr>
<tr>
<td>VLDL mg/dl</td>
<td>29.27</td>
<td>27.15</td>
</tr>
<tr>
<td>TC/HDL</td>
<td>2.38</td>
<td>3.36</td>
</tr>
<tr>
<td>LDL/HDL</td>
<td>4.18</td>
<td>2.91</td>
</tr>
</tbody>
</table>

**Graph 4**: Alteration of Lipid levels of the cases and controls

**Graph 4**: The decreased level of TG, HDL and LDL were also observed among the cases than controls. However VLDL level was higher among the cases than control. TC/HDL and LDL/HDL ratio was significantly higher among the cases than controls.

**Discussion**:

Oral submucous fibrosis is a chronic, progressive, scarring disease that predominantly affects the people of South-East Asian origin. The high incidence of OSMF is commonly associated with habit of chewing areca nut and tobacco. It is a potentially malignant disorder with multifactorial etiology.[12]

Lipids constitute a heterogenous group of biomolecules which are insoluble in water but freely soluble in organic solvents such as ether and chloroform.[13] Variation in plasma lipid profile has been associated with coronary artery disease & some malignant disease are also been reported with early changes in plasma lipid profile as oral precancerous conditions show a significant tendency to develop cancer. Free radicals and reactive oxygen species are generated from tobacco carcinogens which are responsible for high rate peroxidation of polyunsaturated fatty acids which results in more utilization of lipids for new membrane biogenesis. This further affects cell membrane resulting in tissue injury, thus damaging cellular structural blocks and thus might be involved in carcinogenesis.[14]

Cholesterol is an amphipathic lipid and as such is an essential structural component of all cell membranes. It is present in tissues and in plasma lipoprotein either as free cholesterol or combined with a long-chain fatty acid, as cholesteryl ester. Lipoprotein transports free cholesterol in the circulation, where it readily equilibrates cholesterol in other lipoproteins and in membranes.[15]

Cholesterol and triglycerides, important lipid constituents of cell, are essential to carry out several vital physiological functions. It is essential for maintenance of the structural and functional integrity of cell membranes. It controls the red cells from being easily haemolyzed and helps in transportation of fat to
liver in the form of cholesterol ester for oxidation. It is also involved in the activity of membrane bound enzymes and is important for stabilization of DNA helix. Cellular uptake and regulation of cholesterol is mediated by lipoprotein receptors located on the surface of cells.\textsuperscript{16}

As cell progresses from normal through premalignant to malignant condition their chemical character may diverge from normal. Malignant cells have distinct type of metabolism which alter the biochemical parameters which are either increased or decreased.

The alteration in circulatory cholesterol levels have been found to be associated with breast and colorectal cancer. However, only a few reports are available on plasma lipid profile in Oral precancer and cancer.\textsuperscript{8}

As lipids may play a role in precancer and cancer, which are major cell membrane components essential for various biological functions including cell growth and division of normal and malignant tissues.\textsuperscript{17} This study was aimed to estimate serum lipid profile in oral submucous fibrosis groups and to compare the serum lipid profiles in oral submucous fibrosis groups values with values from control groups.

In our study comparison of the serum lipid profile in OSF group and control group showed that there was significant decrease in TC0\textsuperscript{(p=.0001)}, HDL\textsuperscript{C}(p=0.0001), LDLC & Triglycerides\textsuperscript{(p=0.002)} levels in OSF group. Our results is consistent with the studies done by Patel PS et al\textsuperscript{16} where he reported significant decrease in TC, HDL,TG,VLDL in cancer patients as well as in oral precancer conditions but LDL levels did not reveal any significant difference whereas in our study decrease in LDL\textsuperscript{(p=0.0001)} levels in OSMF was seen as compared to controls

Similarly Lohe et al\textsuperscript{18} reported a significant decrease in TC,HDLC levels in oral precancerous conditions however LDL, VLDL & triglycerides did not reveal any significant difference whereas in our study VLDL\textsuperscript{(p=0.46)} does not show any significant decrease.

Similarly Chalkoo et al\textsuperscript{19} conducted a study where he reported significant decrease in TC& LDL which is consistent with our study whereas triglycerides & HDL were slightly increased in some patients with OSMF however in our study serum triglycerides & HDL showed significant decrease.

In present study VLDL do not reveal any significant decrease which is similar to a study conducted by Chawda et al.\textsuperscript{20} Likewise in our study TC/HDL \textsuperscript{(p=0.01)} \& LDL/HDL\textsuperscript{(p=0.02)} were significantly increase in OSMF patients which is not consistent with study conducted by Ghosh et al\textsuperscript{21} where he found decrease in ratio in oral squamous cell carcinoma patients as compared to tobacco habituates.

Our data strengthens the evidence of an inverse relationship between serum lipid profile and oral potentially malignant disorders.

The changes in lipid profile have long been associated with cancer. Hypercholesteremia has been observed in patients with cancers of various organs.

Rose et al\textsuperscript{22} first reported the inverse relation between cholesterol level & risk of cancer. Oral malignancy serum cholesterol undergoes significant changes & low level in tissues & in blood could be due to rapidly dividing cells. In the present study our findings suggests that lower lipid levels may be mainly because of underlying disease process.

References

5. Multimodal treatment options for oral submucous fibrosis SRM University Journal of Dental Sciences Volume 1 - Issue 1 - March 2010
6. Gerber M, Richardson S, DePaulet PC, Pujol H, De Paulet AC. Relationship between vitamin E and polyunsaturated fatty acids in breast cancer:


Aetiology and complications of intrauterine fetal death
Ritanjali Behera¹, Mitali Madhusmita Dash²

Abstract

Aim: To study the aetiology and complications of intrauterine fetal death.

Methods: This was a prospective study carried out in MKCG medical college and hospital over a duration of 21 months.

Results: There were 721 cases of intrauterine fetal death, out of 15,755 deliveries during the study period giving rise to a still birth rate of 45.76. 66% were in the age group 21-30 yrs. 50.5% were in their first pregnancy.46.87%,35.92% belonged to SES class IV and V respectively. 80.9% cases were unbooked. 54.64% cases were preterm. Most of the patients(41.47%) came with complaint of labour pain and only 19.79% for loss of fetal movement. Aetiological factor could be ascertained in 79.82% cases and no cause could be explained in 20.18% cases. PIH and its complications accounted to a maximum of 16.22% cases followed by severe anaemia(12.34%) and abruptio placentae(11.37%). Rupture uterus(6.51%) was most common intrapartum cause of stillbirth. 58% were males and 42% were females. Fresh still born(55.1%) were more than macerated still born(44.9%).61.30% weighed 2500grams or less. Post partum complications developed in 412(57.14%) cases. Most common complication was psychological upset (25.93%) followed by puerperal infection(11.92%). Maternal mortality was seen in 2.49% cases.

Conclusion: The common associated risk factors of IUFD like PIH and its complications, severe anaemia in our community can be prevented with early booking, regular ANC and health counselling.

Intrapartum complications accounted 14.96% cases of stillbirth which could have been prevented with early diagnosis and timely referral.

Identification of High risk pregnancies and referral to higher centre may save many babies.

Introduction: Intrauterine fetal death (IUFD) is a heart-breaking and tragic event. It remains one of the areas of obstetrics in which improvements could be made.

According to the 2003 revision of the Procedures for Coding Cause of Fetal Death Under ICD-10, the National Center for Health Statistics defines fetal death as “Death prior to the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy and which is not an induced termination of pregnancy, death indicated by fact that after such separation fetus does not show any evidence of life such as beating of heart, pulsation of cord, or definite movement of voluntary muscles. Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps.

The definition recommended by WHO for international comparison is a baby born with no signs of life at or after 28 weeks’ gestation. In UK, stillbirths are those babies born dead after 24 weeks of gestation. In other countries, such as Australia, Canada, Finland, New Zealand, Iceland and many states in the USA, fetal death occurring after 20 weeks of gestation is termed as stillbirth.

The estimated global still birth rate worldwide was 18.4 per 1000 total birth in 2015.

The estimated still birth rate in India in 2015 was 22 per 1000 total birth. According to 2011 census still birth rate in urban odisha was 5 and rural odisha 8.

This study was carried out in a tertiary care hospital to identify the causes, to study maternal complications of Intrauterine fetal death, and to suggest possible preventive measures to decrease the further incidence of intrauterine fetal death.

In our study cases with gestational age more than 28 weeks were included.
AIMS AND OBJECTIVES

- To estimate incidence of intrauterine fetal death.
- To identify aetiological factors associated with intrauterine fetal death.
- To study the complications of intrauterine fetal death.

Materials and methodology:

This was a prospective study carried out between December 2014 to September 2016 in the Department of Obstetrics and Gynaecology of MKCG MCH, Berhampur.

Inclusion criteria:

Women diagnosed with intrauterine fetal death after an USG confirmation at gestational age 28 wks and more or Fetal weight more than 1000g when gestational age is not known.

Exclusion Criteria:

All pregnancies with gestational age less than 28wks. All pregnancies of gestational age more than 28wks with live fetus.

Methodology:

On admission a detailed history regarding age, parity, SES, education, occupation, relevant past history, ANC, immunisation, IFA & calcium intake was collected. Thorough clinical and laboratory examination was done and relevant findings were recorded. After delivery foetuses were observed for any congenital anomalies present. Weight of the dead fetuses were recorded. After gross examination placenta was sent for histopathological study. Autopsy could not be done as it was refused by majority of patients on religious grounds.

During immediate post-partum period and subsequent post-natal period, the condition of the mother was closely observed for detection of any complications and their management.

Statistical Analysis: All data were entered in a SPSS data based programme and were analysed.

Results:

TABLE 1 : INCIDENCE OF STILLBIRTH

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no of births</td>
<td>15,755</td>
</tr>
<tr>
<td>Total no of Still births</td>
<td>721</td>
</tr>
<tr>
<td>SBR</td>
<td>45.76</td>
</tr>
</tbody>
</table>
TABLE 4:
AETIOLOGICAL FACTORS OF STILLBIRTH

<table>
<thead>
<tr>
<th>Antepartum</th>
<th>No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe Anaemia</td>
<td>89</td>
<td>12.34</td>
</tr>
<tr>
<td>PIH &amp;comp</td>
<td>117</td>
<td>16.22</td>
</tr>
<tr>
<td>GDM &amp; DM</td>
<td>15</td>
<td>2.08%</td>
</tr>
<tr>
<td>Thyroid disorders</td>
<td>15</td>
<td>2.08%</td>
</tr>
<tr>
<td>Multiple pregnancy</td>
<td>16</td>
<td>2.21%</td>
</tr>
<tr>
<td>Infections</td>
<td>42</td>
<td>6.12%</td>
</tr>
<tr>
<td>Abruptio placetae</td>
<td>82</td>
<td>11.37</td>
</tr>
<tr>
<td>Placenta previa</td>
<td>18</td>
<td>2.50%</td>
</tr>
<tr>
<td>Prolonged pregnancy</td>
<td>46</td>
<td>6.55%</td>
</tr>
<tr>
<td>Diagnosed IUGR</td>
<td>14</td>
<td>1.94%</td>
</tr>
<tr>
<td>Oligohydramnios</td>
<td>8</td>
<td>1.01%</td>
</tr>
<tr>
<td>Cong anomaly</td>
<td>56</td>
<td>7.77%</td>
</tr>
<tr>
<td>Rh sensitisation</td>
<td>7</td>
<td>1.01%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intrapartum</th>
<th>No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstructed labour</td>
<td>13</td>
<td>1.80%</td>
</tr>
<tr>
<td>Cord prolapsed</td>
<td>30</td>
<td>4.16%</td>
</tr>
<tr>
<td>Trans lie hand prol</td>
<td>18</td>
<td>2.49%</td>
</tr>
<tr>
<td>Rupture uterus</td>
<td>47</td>
<td>6.51%</td>
</tr>
<tr>
<td>Unexplained</td>
<td>146</td>
<td>20.18%</td>
</tr>
</tbody>
</table>

As depicted in table 4 an aetiological factor could be ascertained in 79.82% cases and no cause could be explained in 20.18% cases. Out of various causative factors PIH and its complications accounted to a maximum of 16.22% cases followed by severe anaemia (12.34%) and abruptio placetae (11.37%). It was observed that 8.18% cases with abruptio placetae had associated PIH and its complications. Rupture uterus (6.51%) was most common intrapartum complication causing stillbirth.

TABLE 5: MODE OF TERMINATION

<table>
<thead>
<tr>
<th>MOT</th>
<th>No</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VD</td>
<td>590</td>
<td>81.83</td>
</tr>
<tr>
<td>LSCS</td>
<td>84</td>
<td>11.65</td>
</tr>
<tr>
<td>Repair</td>
<td>17</td>
<td>2.35</td>
</tr>
<tr>
<td>STH</td>
<td>30</td>
<td>4.16</td>
</tr>
</tbody>
</table>

Table 5 depicts various modes of pregnancy termination. Vaginal delivery occurred in 81.83% cases and LSCS was conducted in 11.65% for different indications. Obstetric hysterectomy was performed in 30(4.16%) and repair in 17(2.35%) cases who presented with rupture uterus.

Table 6: DIFFERENT INDICATIONS FOR LSCS (n=84)

<table>
<thead>
<tr>
<th>Indications</th>
<th>Preterm</th>
<th>Term</th>
<th>Post term</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstructed labour</td>
<td>0(0.00%)</td>
<td>9(1.24%)</td>
<td>40(5.55%)</td>
<td>13(1.80%)</td>
</tr>
<tr>
<td>Transverse lie</td>
<td>30(41.3%)</td>
<td>120(16.6%)</td>
<td>200(27.2%)</td>
<td>170(22.5%)</td>
</tr>
<tr>
<td>Preeclampsia w/ FOP</td>
<td>0(0.00%)</td>
<td>50(6.69%)</td>
<td>200(27.2%)</td>
<td>70(9.79%)</td>
</tr>
<tr>
<td>PIH</td>
<td>70(99.7%)</td>
<td>160(21.21%)</td>
<td>400(55.55%)</td>
<td>270(34.79%)</td>
</tr>
<tr>
<td>Abruptio placetae</td>
<td>20(27.2%)</td>
<td>50(6.69%)</td>
<td>0(0.00%)</td>
<td>70(9.79%)</td>
</tr>
<tr>
<td>Placenta previa</td>
<td>30(41.3%)</td>
<td>0(0.00%)</td>
<td>0(0.00%)</td>
<td>30(41.3%)</td>
</tr>
<tr>
<td>Failed IOL*</td>
<td>10(13.5%)</td>
<td>50(6.69%)</td>
<td>0(0.00%)</td>
<td>60(8.28%)</td>
</tr>
</tbody>
</table>

*Failure of Induction
** Induction of Labour

The above table showed various indications of LSCS most common being PIH and its complications (3.74%) followed by transverse lie (2.35%). Incidence of obstructed labour resulting in intrauterine death was 1.8%. In 6 cases LSCS was done for failed induction of labour and 4 cases had 2 previous LSCS. LSCS was done in cases of abruptio placetae and placenta previa with active bleeding per vaginum in 7 and 3 cases respectively.

TABLE 7: SEX OF NEWBORN

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>303</td>
<td>42</td>
</tr>
<tr>
<td>Male</td>
<td>418</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>721</td>
<td>100</td>
</tr>
</tbody>
</table>

Out of 721 cases 303(58%) were males and 418 (42%) were females.

TABLE 8: GROSS FEATURES

<table>
<thead>
<tr>
<th>Gross Features</th>
<th>No. of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSB*</td>
<td>397</td>
<td>55.1</td>
</tr>
<tr>
<td>MSB**</td>
<td>324</td>
<td>44.9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>721</td>
<td>100</td>
</tr>
</tbody>
</table>

*Fresh Still Born
**Macerated Still Born

Number of fresh still born (55.1%) were more than macerated still born (44.9%).

TABLE 9: DYSMORPHIC FEATURES (n=56)

<table>
<thead>
<tr>
<th>Cong. Anomaly</th>
<th>No. of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNS*</td>
<td>38</td>
<td>5.27</td>
</tr>
<tr>
<td>GIT**</td>
<td>10</td>
<td>1.38</td>
</tr>
<tr>
<td>MSD**</td>
<td>5</td>
<td>0.69</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>0.41</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>7.76</td>
</tr>
</tbody>
</table>

*Central Nervous System
** Gastrointestinal Tract
*** Musculo Skeletal Disorders
Table 9 indicated that the leading fetal anomalies were related to Central nervous system (5.27%). GIT anomalies like omphalocoele, gastroschisis were present in 1.38% of cases. Musculoskeletal and connective tissue disorders like sirenomelia, achondroplasia, absent and hypoplastic limbs, Harlequins ichthyosis contributed 0.69% of total anomalies. Multi organ malformation and others constituted 0.41%.

**TABLE 10 : WEIGHT OF NEWBORNS (n=721)**

<table>
<thead>
<tr>
<th>Weight of Newborns in Kg.</th>
<th>No. of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1.5</td>
<td>191</td>
<td>26.49</td>
</tr>
<tr>
<td>1.6-2.5</td>
<td>251</td>
<td>34.81</td>
</tr>
<tr>
<td>2.6 and above</td>
<td>279</td>
<td>38.69</td>
</tr>
<tr>
<td>Total</td>
<td>721</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 10 represents the weight of newborn babies. Maximum number of foetuses 442(61.30%) weighed 2500 grams or less. 38.69% foetuses had birth weight 2600 grams or more.

**TABLE 11 : MATERNAL COMPLICATIONS (n=394)**

<table>
<thead>
<tr>
<th>Complications</th>
<th>No. of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPH</td>
<td>57</td>
<td>7.90</td>
</tr>
<tr>
<td>Psychological upset</td>
<td>187</td>
<td>25.93</td>
</tr>
<tr>
<td>Puerperal infection</td>
<td>86</td>
<td>11.92</td>
</tr>
<tr>
<td>DIC</td>
<td>43</td>
<td>5.96</td>
</tr>
<tr>
<td>ARF</td>
<td>21</td>
<td>2.91</td>
</tr>
<tr>
<td>Maternal mortality</td>
<td>18</td>
<td>2.49</td>
</tr>
<tr>
<td>Total</td>
<td>412</td>
<td>57.14</td>
</tr>
</tbody>
</table>

Table 11 demonstrated different maternal complications that occurred following delivery of an IUD foetus. Post partum complications developed in 412(57.14%) cases. Most common complication was psychological upset and was found in 187(25.9%) cases. Next common was puerperal infection observed in 11.92%. Other less common complications were PPH (7.90%), DIC (5.96%) and ARF (2.91%).

**Table : 12 MATERNAL MORTALITY (n=18)**

<table>
<thead>
<tr>
<th>Causative Factor</th>
<th>No. of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rupture ut in shock</td>
<td>7</td>
<td>0.97</td>
</tr>
<tr>
<td>HELLP syndrome with DIC</td>
<td>6</td>
<td>0.83</td>
</tr>
<tr>
<td>PE with abruptio placentae</td>
<td>3</td>
<td>0.41</td>
</tr>
<tr>
<td>CCF with pulmonary oedema</td>
<td>2</td>
<td>0.27</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>2.49</td>
</tr>
</tbody>
</table>

Table 12 demonstrated maternal mortality and its causes. Maternal mortality occurred in 18(2.49%) out of 721 cases. Causes of maternal death were rupture uterus received in low condition in 7 (0.97%) cases, HELLP syndrome with DIC in 6 (0.83%) cases, Preclampsia with abruptio placentae in 3(0.41%) cases and congestive cardiac failure with pulmonary oedema in 2 (0.27%) cases.

**Table 13 : H/P STUDY OF PLACENTA (n = 721)**

<table>
<thead>
<tr>
<th>H/P Finding</th>
<th>No. of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retroplacental haematoma</td>
<td>82</td>
<td>11.37</td>
</tr>
<tr>
<td>Infarction</td>
<td>74</td>
<td>10.26</td>
</tr>
<tr>
<td>Chorioamnionitis</td>
<td>166</td>
<td>23.02</td>
</tr>
<tr>
<td>Chorioangioma</td>
<td>5</td>
<td>0.69</td>
</tr>
<tr>
<td>Villus immaturity</td>
<td>31</td>
<td>4.29</td>
</tr>
<tr>
<td>Villus hypoplasia</td>
<td>50</td>
<td>6.93</td>
</tr>
<tr>
<td>Normal study</td>
<td>216</td>
<td>29.99</td>
</tr>
<tr>
<td>Failed follow up</td>
<td>97</td>
<td>13.45</td>
</tr>
<tr>
<td>Total</td>
<td>721</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 13 demonstrated that placental abnormalities on histopathological examination were found in 56.56% of placenta. The above table depicted chorioamnionitis in 23.02%, retroplacental haemorrhage in 11.37%, infarction in 10.26%, villus hypoplasia in 6.93%, villus immaturity in 4.29% patients. Normal placental histology was found in 29.99% cases. 97(13.45%) patients did not report with placenta to pathology department and hence were lost to follow up.

**Discussion :**

During the study period there were 721 stillborns in our hospital out of 15,755 total births delivered after 28 weeks of gestational age. Incidence of stillbirth in our set up was 45.76 per 1000 birth. The reason for such high stillbirth rate in our centre was it being a tertiary care referral centre. Patients from very faraway places were referred here after an ultrasonographic diagnosis for further management. Maximum intrauterine fetal death i.e 66% occurred in the age group between 21 to 30 years reflecting the period of maximum reproducibility.

Maximum number of stillbirths in our study were primigravidas (50.5%). Maximum(80.9%) cases were unbooked and 82.79% cases belonged to socioeconomic class IV and V. Majority of studies showed that intrauterine fetal death was more closely associated with low socioeconomic status and unbooked cases. Because of lack of antenatal care high risk pregnancies remain undiagnosed leading to untimely fetal demise. And also no intake of iron and folic acid poses...
them at risk of fetal neural tube defects and severe anaemia leading fetal death and various maternal complications. It is a well established fact that adequate ANC is associated with better pregnancy outcome.\textsuperscript{2}

In our study 75.31\% were admitted in emergency unit. These high number of case admissions in emergency unit could be explained on the basis of lack of regular ANC which could otherwise have detected modifiable risk factors and improved pregnancy outcome.

Majority (41.4\%) of case in our study presented with chief complaint of labour pain followed by bleeding per vaginum(13.03\%) which was consistent with the study by Rathava R Y et al\textsuperscript{6}. Only 19.6\% presented with loss of fetal movement before labour pain started. In more than half of the recorded cases (54.7\%) in a study by Tamrakar SR\textsuperscript{7} the complaint was of reduced or absent foetal movements suggesting an association between reduced foetal movements and adverse fetal outcome.

So regular ANC check up and counselling patients for daily fetal movement count and to report hospital if there was a decreased fetal movement could have reduced a substantial burden of intrauterine fetal death.

Cause of IUFD could be explained in 79.82\% cases and remained unexplained in 20.18\% cases.

Most common attributable cause of intrauterine death, in our study was hypertension and its complications (16.21\%) which was consistent with Kumar et al (19\%) and Rathava R Y et al (17\%) study.\textsuperscript{2} In our research severe anaemia (12.3\%) was next in frequency to hypertension and its complications as a cause for intrauterine fetal death. This high incidence of severe anaemia in our study might be due to poor compliance to oral iron therapy, hookworm infestation and food faddism.

In our study Diabetes, thyroid disorders contributed 2.08\% and 2.08\% to intrauterine fetal death respectively which was in accordance with Patel S et al study.\textsuperscript{8}

In our study infection as a cause of fetal death was found in 5.67\% cases which was consistent with the study by Choudhary A et al \textsuperscript{9}.

Out of various intrapartum complications causing intrauterine fetal death rupture uterus was the most common cause and was seen in 5.68\% cases followed by cord prolapse (4.16\%). As ours was a tertiary care referral centre most of the cases received are referred late without proper antenatal and intrapartum care and hence with severe maternal morbidity.

Congenital anomaly was identified in 7.77\% cases of intrauterine fetal death and Rh isoimmunisation in 0.97\% cases in our study. Very less proportion of death due to Rh isoimmunisation was seen because of availability of Anti D prophylaxis. Neural tube defect was most common congenital anomaly in our study which has been observed in many studies. This may be due to lack of folic acid supplementation in periconceptional period. Our study findings were consistent with most other studies.

The leading fetal anomalies were related to Central nervous system (5.27\%).

GIT anomalies like omphalocele, gastrochisis were present in 1.38\% of cases. Musculoskeletal and connective tissue disorders like sirenomelia, achondroplasia, absent and hypoplastic limbs, Harlequins ichthyosis contributed 0.69\% of total anomalies. Multi organ malformation and others constituted 0.41\%.

Abruptio placentae was seen in 11.37\% cases which was in accordance with Rathava R Y et al\textsuperscript{6}(12\%) and Dave A et al\textsuperscript{1}(14\%) studies. In our study 8.18\% cases had associated pregnancy induced hypertension. This causative factor could have been identified early and prevented with routine antenatal check up and proper management avoiding untimely intrauterine fetal demise and maternal morbidity and mortality.

In our study 81.8\% cases delivered by vaginal route and 18.2\% cases operative intervention was taken which is consistent with almost all studies reviewed.

Most common indication for C section in our study was hypertensive disorders of pregnancy and its complications with low Bishop’s score. Transverse lie with hand prolapse was the most common(2.35\%) intrapartum complication requiring LSCS followed by obstructed labour(1.80\%)(Table 25). Literatures reviewed does not clearly specify the different indications for LSCS in pregnancy with intrauterine fetal death.
In our study the stillborn foetuses were predominantly males suggesting a link between male sex and increased rate of stillbirth which is in accordance with almost all literatures reviewed. Previous studies also suggested that male foetuses are more likely to suggest from ante or intrapartum hypoxia.

Maximum number of foetuses 442(61.30%) weighed 2500grams or less which was in accordance with the study by Dave a et al\(^1\)(61.5%). This might suggest a possible role of prematurity and IUGR in causing fetal death. In our study incidence of IUGR diagnosed was very less(1.94%) as unbooked cases were too high(80.9%) in our set up. So maximum cases of IUGR remained undiagnosed in our study. In our study psychological upset and DIC were observed in 25.9% and 5.96% os patients respectively which was consistent with research by Singh N et al.\(^10\)

Incidence of post partum haemorrhage, puerperal infection,ARF ,maternal mortality in our study were 7.9%,11.92%,2.91%,2.49% respectively.

Placental histopathology was normal in 29.99% cases and chorioamnionitis was the next most common cause identified in 23.02% cases.

Conclusion :

The common associated risk factors of IUFD like PIH and its complications, severe anaemia in our community can be prevented with early booking, regular ANC and health counselling.

Intrapartum complications accounted for 14.96% cases of stillbirth which could have been prevented with early diagnosis and timely referral.

Identification of High risk pregnancies and referral to higher centre may save many babies.

**BIBILIOGRAPHY :**


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INTRODUCTION AND KEYWORD:
Nephrotic syndrome are mostly idiopathic with 80% cases having minimal change histology synonymous with steroid responsive nephrotic syndrome. The remission that occasionally follows measles, its association with Hodgkin’s disease and remission following its treatment suggest a underlying immune dysfunction.

Keywords- Nephrotic Syndrome, allergy, asthma, IgE.

AIM: Study of relationship between Nephrotic syndrome especially steroid responsive type with clinical allergies.

MATERIALS AND METHODS:
A Cross-sectional study conducted at Dept. of Pediatrics, SCB Medical college and hospital and SVPPGIP, Cuttack, Odisha for a period of 2 years (Sept. 2013 to Aug. 2015).

Three groups were studied with sample size and description as follows.

Group A- Cases (Nephrotic Syndrome). (n=80).
Group B (Control) - Children primarily presenting for non atopic conditions but who may be having history of or existing clinical allergy. (n=70).
Group C (Control) - Healthy Children. (n=40).

INCLUSION CRITERIA:
* Children 2-10 years of age.
* Children having clinical and biochemical evidence of Nephrotic syndrome.

EXCLUSION CRITERIA:
* Children < 1 year.
* Children with nephrotic syndrome with associated features of azotemia, hematuria, hypertension.
* Children with immunodeficiency disorders.
* Children with edema due chronic liver disease, CCF, severe malnutrition etc.


RESULTS:
1. In the present study 80 cases presenting with NS were studied, the incidence of four main allergic disorders in control groups A and B was significantly lower (19%, 13%) but showing positive allergic history in 51(64%) cases of nephrotic syndrome. (p=0.034; Significant).
2. Allergic rhinitis 46(58%), atopic dermatitis 9(12%), Asthma 7(9%) and food allergy 2(2%) was seen commonly in cases of nephrotic syndrome.
3. 76 (95%) of 80 NS children had serum IgE >300 IU/ml and those with a positive allergic history, 51 (64%) cases had a mean level of 1550 IU/ml.
4. 50% cases had at least one first order relative with history of allergy.
No association was found between either the time of relapse (frequent/infrequent) of NS, the season of the year or the occurrence of allergy.

**CONCLUSION:** Nephrotic Syndrome was found strongly be associated with standard atopic disorders. The high serum IgE level in children with nephrotic syndrome, we can infer it also seems to be associated with humoral immune disorder. Predisposition to allergy found in first degree relatives.

**REFERENCES:**

INTRODUCTION

Rhinoplasty is a common aesthetic procedure on the face. Majority of these patients require augmentation. For augmentation there are various materials available that can be used to restore the volume and structural integrity of the nose. The available biomaterials can be divided into two broad categories: autografts, which are derived from the patient and include cartilage, bone, fascia, and dermis; and homografts, which are derived from tissues donated by members of the same species and include irradiated cartilage and acellular dermis. Alloplastic implants are synthetic implants (biocompatible polymers) with a variety of applications in plastic surgery. Autologous materials have relatively high biocompatibility, low infection and extrusion rate. We present our series of calvarial bone graft for augmentation rhinoplasty.

MATERIAL METHODS

19 patients with deficient nasal bridge were chosen for this procedure. All these patients were explained the pros and cons of calvarial bone graft. The choice of the calvarial graft was made by the patient. Out of these 12 were female patients and 7 were male. The age group varies between 17yr to 36 yrs. The minimum follow up was 3yrs and maximum follow up was 5yrs.

PROCEDURE

Calvarial grafts were harvested from the parietal bone of nondominantside. Through a hemi-coronal incision parietal bone is exposed. The exact dimension of bone required is marked on the parietal bone(Fig-1). With help of cutting burr and curved osteotome the required segment is harvested leaving behind the inner table(Fig-2). The edges of the cut outer table surrounding the graft is contoured with a burr, rendering the donor-site defect mild, wide, and inconspicuous. The graft is placed in the dorsum of the nose through a columellar incision.

Fig- 1 Intra op

Fig- 2 Intra op

Fig- 3 Pre op

1Asso Prof, 2Mch Resident, SBM Hospital & Research Centre, Gopalpur, Balikuda, Cuttack.
RESULTS

All the patients have significant improvement in their appearance. Columellar scar are well settled and inconspicuous. One patient had minor infection in scalp wound which settled with removal of bone wax and antibiotics. The scar was very well concealed with scalp hair. The patients had minimal post operative pain and morbidity.

DISCUSSION

Calvarial bone graft is a very good autologous material. It has no chance of exposure. The rate of resorption is minimal as it is embryologically close to nasal bone. It has minimal morbidity.\(^1\)\(^2\) The donor scar is hidden. However, the risk of central nervous system injury and hematoma formation, though rare, exists.\(^3\)\(^4\)

Silicon implants have high chance of extrusion and tissue reaction and infection.

Cartilage grafts like septal cartilage, conchal cartilage have high resorption rate. There is minimum graft material in septum and concha.\(^5\) Patients with collagen vascular disease, immunological disease or with tendency to develop keloid can produce ear deformity when conchal cartilage is used.\(^6\)

Diced costal cartilage which is currently being preferred doesn’t provide as much contour in comparison to calvarial graft. For mild to moderate deficiency this material may helpful.

Costal cartilage harvest leaves a prominent scar. There is possibility of iatrogenic pneumothorax, chest wall deformities caused by unpredictable scarring, persistent postoperative pain, longer anesthesia, and incisional dehiscence or infection.\(^7\)

Other bone materials have also been used but the scar is visible, resorption rate is high and post operative pain is more.

CONCLUSION

Calvarial bone graft, though requires expertise for harvest, is an excellent material for nasal augmentation and scores over all other materials on all front.

REFERENCES

Management of club foot by Ponseti
Plaster technique

Dr Sakti Prasad Das, MS(Ortho.), DNB(PMR)

Introduction

Talipes equinovarus, or clubfoot, is a combination of forefoot adduction, supination and adduction of the foot, varus at the heel, and equinus at the ankle (Fig.1). Idiopathic clubfoot develops during the second trimester of pregnancy and is detectable in sonograms. It usually occurs in otherwise healthy fetuses. Annually over 100,000 babies are born with idiopathic clubfoot worldwide. It is estimated that in the U.S. it occurs in 0.6-1.0 per 1000 live births. Half of the cases tend to be bilaterally affected and boys are twice as likely as girls to have clubfoot.

Dr. Ignacio Ponseti (Fig 2) has treated clubfoot using a manipulative, casting, and minimal surgical method since 1950. Once reduced and corrected, a foot abduction orthosis (FAO) is fitted to continue to hold the foot in a corrected position from infancy until four years of age. This method has recently been popularized in the orthopedic community due to the positive outcomes published by Ponseti, as early as his initial paper in 1963.

Treatment of idiopathic clubfoot should begin soon after birth. The Ponseti Treatment Method consists of gentle manipulations of the clubfoot followed by the application of a long-leg plaster cast changed every week up to four to six times. The clubfoot is manipulated to simultaneously correct the cavus and hindfoot varus. The forefoot is supinated and the first metatarsal dorsiflexed to correct the cavus, while the forefoot, in supination, is abducted with counter pressure against the head of the talus. Thus, correcting the foot adduction and heel varus. Finally, dorsiflexion of the fully abducted foot corrects the equinus. At each visit the clubfoot is maximally corrected without hurting the baby and a cast applied with the knee flexed at 90°. (Fig 3)

The clubfoot usually corrects after the application of five to six casts (Fig. 4). A percutaneous tenotomy of the Achilles tendon is necessary in 80% of the cases and is performed before the last cast is applied. The final cast is molded with the foot in 60-70° of abduction and 20° of dorsiflexion, and worn for 2.5 to
three weeks if a tenotomy was performed. After the removal of the final cast, a FAO is worn to prevent relapses. The FAO should be worn for 23 hours per day for the first three months and then at nap and night time only until three to four years of age.

If the technique and use of FAO are done correctly, a relapse only occurs in 5% of the cases, and most relapses are correctable if caught early enough. We conducted a prospective study to know the utility of this method and results analyzed.

Materials and Methodology

A prospective study was conducted among all the patients below 1 year of age with Idiopathic Clubfoot presenting to our Hospital (SVNIRTAR, Cuttack, Odisha) between August 2013 to August 2014 who were treated by Ponseti method. Ethical clearance was taken from institution ethical committee. Data was collected by taking complete history including consanguinity, prenatal, intra-natal, postnatal and developmental milestones. A written informed consent was taken from parents. Parents were educated about the condition, various methods of management and more importantly the course of Ponseti method. Babies were followed up for a minimum of 1 year. The severity of the deformity was graded according to Pirani Scoring. (5)

A total of 36 feet confirmed by experts to have Untreated Idiopathic Clubfoot were enrolled in the study.

Inclusion Criteria: Babies aged less than one year with idiopathic clubfoot were included in the study.

Exclusion Criteria: Babies with clubfoot associated with neurological defects, congenital spine and hip deformities and whose foot previously treated by same or other methods were excluded from the study.

Method

The treatment was in 2 stages: Correction of the deformity by weekly serial casting and Maintenance of that correction by bracing. Casting should be done as soon as possible after birth. In some babies with fragile neonatal skin treatment can be postponed to a week or two later. Initial severity of club foot was assessed by Pirani scoring. The cavus deformity was corrected first by supinating the forefoot to bring it in alignment with the hind foot. Long leg cast was applied to maintain this correction for 1 week. Next week the cast was removed in the out patient and again scoring was done to check the improvement and compliance. Over the next 2 to 3 weeks the foot was serially abducted and casting was done to bring about over correction. Additional casting sometimes would be needed.

When the calcaneum was sufficiently abducted beneath the talus, scoring was done. When mid foot score falls below 1 but hind foot score remained over 1, it was indicative of residual equinus deformity requiring release of the contracture, for which Percutaneous Tendo-Achillis Tenotomy should be done. Tenotomy was done under sedation achieved by syrup pediclyl and local anaesthesia. Tenotomy was done by a 18G needle. Long leg cast was applied for the next 3 weeks. Babies were then shifted to Maintenance phase by bracing them in Denis Browne splint 23 hours a day for the first 3 months and then 14 hours a day for 3 years. If the child does not co operate for D-B splint wearing then a poly propylene AFO alternately used. Weekly follow up was done during initial periods of bracing to ensure compliance and to periodically assure and educate the parents. Later monthly follow up was done for about 1 year. Each foot was evaluated cosmetically, functionally and rated according to the following criteria:

A. Excellent

- Complete correction of all components of the deformity
ORISSA MEDICAL JOURNAL

- Plantigrade cosmetically acceptable foot
- Pliable subtalar motion and dorsiflexion to less than 90 degrees

B. Good
- Complete correction of all components of the deformity
- Fully plantigrade, supple and mobile foot with minor degree of persistent
- Metatarsus adductus

C. Average
- Plantigrade and functionally acceptable
- Cosmetically less acceptable
- Some loss of initial correction, which amenable to re manipulation or repeat tenotomy.

D. Poor
- Loss of correction and recurrence of the deformity requiring soft tissue release
- Rigid clubfoot resistant to manipulation in first time

Observation and Results

In our study, 15(60%) of the babies were males and remaining 10(40%) were females, among which 11(44%) of the babies had bilateral deformity, 8(32%) had right foot deformity and 6(24%) had left foot deformity. So practically we were dealing with of the 15 babies(22 foot) presented in less than 4 months group,7 babies (9 foot) presented between 4-8 weeks and 3 babies(5 foot) presented to us after 8 months.

Precutaneous Tendo achillis tenotomy by needle is an integral part of Ponseti method. Objectively the decision is taken when midfoot score has fallen below 1 indicating complete correction of cavus, varus and adduction. In our study tenotomy was done in 72% of the cases.

More the deformity or later the presentation, more are the number of castings required with more number of visits. The results were excellent in 64% (16 out of 25) and good in 28% (7 out of 25). The average Pirani score(5) for the group at the presentation was 5.47 (4.5 to 6) and the mean final Pirani score was 0.25 (0 to 0.5) with a ‘p’ value of 0.001 hence being statistically significant.

Discussion

Clubfoot or congenital talipes equinovarus is a complex deformity of foot whose etiopathogenesis remains poorly understood. The effect of the deformity on the social and physical life of the patients and their parents cannot be over emphasized. The management of this deformity had been a problem for treating doctors for centuries.(6,7,8,9)

The Ponseti method of correction of clubfoot deformity has recently acquired the status of first line management.(10,11)

This study demonstrates the effective use of manpower and guided motivation to identify the cases and correction of the deformity in all the cases without the use of extensive procedure like posteromedial soft tissue release.

In our study, male to female ratio is 1.5:1 when compared to other similar studies which ranges from 2.33:1 to 2.5:1 done in various parts of the world.(12,13)

Few Indian studies showed that the ratio ranges from 2:1 to as high as 4:1(14,15,16,17). The prevalence of laterality 44%(bilateral), 24%(right), 32%(left) was almost similar other study i-e 56%, 22% and 22%.(13)

The number of cast per feet in our study was four to seven (average 5.8), Other studies showed 4.9 to 7 casts.(16,18,19,20) Of the children who presented to us, 60% (15 out of 25 babies) were below 4 months of age and 40% above suggesting poor referral system in our area and ignorance on the part of the parents.

In present study, good to excellent results were achieved in 92% of cases. Postero medial soft tissue release was avoided in all cases. Percutaneous tenotomy is an integral part of Ponseti method.

Tenotomy was required in 72% of the cases (26 out of 36 feet) in our study which was higher compared to other studies.(5,16,18)

Complications such as severe bleeding due to injury to Peroneal artery after tenotomy was showed in a study which was done at Washington university but in our study we did not come across any such complication.(21)

2 cases had relapse of equinus deformity and tenotomy had to be repeated. 2 babies had developed
pressure sores because of cast which healed uneventfully. Cast was delayed for 2 weeks. In most cases we believe that the reason for relapse was lack of compliance in keeping the foot in the DB splint for the required periods.

Conclusion
Ponseti method of clubfoot treatment is an excellent method as per our study. It avoids the surgical complications and gives a painless, mobile, normal looking functional foot which requires no special shoes and allows good mobility. In a developing country like India, where poverty and ignorance still have a say, a dearth of proper operative facilities in remote area, this technique is a very safe, easy, result-oriented, economical method of clubfoot management.

References:
ABSTRACT

Objective: To study the risk factors, clinical presentation and outcome of management in patients of carcinoma of cervix for one year.

Design: Retrospective descriptive study.

Place and duration of study: Department of Oncology & Gynacology, Archarya Harihar Cancer Research Institute, Cuttack, Orissa, from July 2012 to July 2013.

Subjects & Methods:

All the patients coming to the outdoor of Oncology & Gynecology Department during the period of study were included. Relative information were filled in a proforma, like they were asked about their age, name, parity, menopausal status, habits, family history, economic status etc. So that case study should be maintained. In this study, 200 number of patients were studied.

Results:

There were 80% patients above the age of 40 years, 70% patients were married below the age of 20 years. The prevalence of screened women for cc was 75%. The factors associated with a high risk for screened were the followings: Poverty, younger age, low educational level, a greater number of children, low diet & not having visited a doctor in the past six month. Foul smelling bloody vaginal discharge, post coital bleeding, post-menopausal bleeding, post-menopausal bleeding and irregular periods were the most common symptoms. Most of the patients presented late, so 65% patients were referred for radiotherapy alone.

Conclusion:

Lack of effective screening programmes and awareness of patients have led to delay in diagnosis. All women of reproductive age, pre and post menopausal age groups, low socio-economic status and teenage marriage, high parity, low hygiene should undergo regular screening for carcinoma of cervix in their own locality. Socioeconomic and demographic conditions leads to inequalities in access to papsmear screening in Odisha Public Health Policy addressing these risk group is necessary.

Background

The systematic review on which this paper is based provided evidence for the patients coming to the outdoor of AHCRI, Cuttack, Odisha to update their guideline regarding screening for cervical cancer. In this article we highlight ten questions coveted in the full paper that pertain to the effectiveness of Screening for reducing cervical cancer. In Odisha, a backward state of India, the importance of cervical screening has been addressed in numerous studies. However, review and papers conducted to explore of strategic to promote attendance for cervical screening has been limited. This study aimed to explore strategies to promote attendance for cervical screening, cervical cancer motility and incidence as well as optimal timing and frequency of screening. As per the data cervical cancer remains the most frequent cancer in women from the developing world. More than 88% of deaths occurs in low income countries, and it is predicted to climb to 91.5% by 2030. Although pap-based screening programmes have shown to be effective in reducing disease burden in high resource countries, implementation & sustention of cytology based programmes is quite challenging in low resource setting.

The present paper reviews evidence based alternatives of screening methods, treatment of cervical precancerous lesions, age-groups high pregnancy and age group at screening appropriate for low income countries. The study is based on the incidence of cervix cancer among the women referred to AHCRI, Cuttack, Odisha. It aims to study the characteristics of cellular abnormalities in the cervical smear of patients and different socio-economic and other risk factors that affecting the incident of cervix cancer.
INTRODUCTION:

Carcinoma of the cervix continues to be the second commonest female cancer worldwide with only breast cancer occurring more commonly while it is the commonest cancer occurring among females in developing countries. In the developing countries about 75% patients of carcinoma of cervix present with an advance stage. Cervix cancer is the most prevalent cancer in women after breast cancer. It is the most common cause of death among women of ages between 41 to 50 with gynecological cancer.

The causative factors for development of cervix cancer are many such as infection by certain viruses. Human papilloma viruses (HPV), sexual behavior, age pregnancy, use of contraceptive pills, nutritional deficiencies and mode of pander different life styles (habits) etc. [etal 2012] In India approximately 71,600 new cases of cervical cancer are reported every year Odisha, One of the socio economically background states of India with illiteracy is suffering from high cancer incidence.

Numerous studies of the epidemiology of cervical cancer have shown strong association with marital and sexual patterns other speculative risk factors for cervical cancer includes cigarrate smoking and tobacco chewing.Cervical cancer is one of the most malignant disease of women it is diagnosed in almost half a million women every year and half of many die from it annually. In India, its incidence has decreased due to cytological screening. Primary prevention can be achieved through health education and vaccination to prevent infection from HPV. (Human Papilloma virus). The initial results from vaccination trial are encouraging but wide scale use is more than a decade away.

There are many stages of cancer, which gradually and slowly developed from one to another. As Orissa, is one of the socio-economic backward State of India, has not fully fledged to cytological detection. However, some institutions like Archarya Harihar Cancer Research, Cuttack and some others have developed techniques for early detection and screening in the few past decades. Most of the stages of carcinoma of cervix come for treatment in this backward state at such an advanced stage of the disease, that curative treatment becomes unsatisfactory. Early detection could provide better and more effective treatment at lower costs. It also could offer these women a better prognosis regarding survival and quality of life.

Materials and Methods :

In this study, 200 number of patients were studied from July 2012 to July 2013. These patients were referred by the Gynecological department of S.C.B. Medical College & Hospital to the Archarya Harihar Cancer Institute. For this study, cervical smear scraping was taken from the patients. They were asked about their age, parity, menopausal status, habits, family history, economic status etc. So that, case study should be maintained.

Current status and available data bases

As far the epidemiological studies has been conducted world wide the prevalence of cervical cancer are much more than other cancer types.

Cervical cancer is the leading cause of cancer mortality in women in developing countries. A study conducted by Hyacinth etal, 2012 showed that lower level of awareness of cervix cancer (50.9%) and pap smear test (38.1%) when compared with reports from other parts study on socio-demographic characteristics, knowledge of cervix cancer, and attitude towards single or combined screening were carried out by research groups of China which showed a screening programme was more effective and popular than single disease project [et al 2012].

Statistical Analysis :

Simple statistical analysis of the data were done and results were tabulated.

RESULTS

This study is based on the analysis of data regarding 200 patients. Table-1 shows that age above 40 years, early age at marriage, low socio-economic status, high parity, irregular bleeding, post-menopausal women, smoking or chewing tobacco, use oral contraceptive and about patients family history.
1. Risk factors of Carcinoma Cervix

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>No. of patients</th>
<th>% Age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-40</td>
<td>58</td>
<td>29</td>
</tr>
<tr>
<td>41-60</td>
<td>136</td>
<td>68</td>
</tr>
<tr>
<td>&gt;60</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td><strong>Age at Marriage:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20 years</td>
<td>145</td>
<td>72.5</td>
</tr>
<tr>
<td>&gt; 20 years</td>
<td>55</td>
<td>27.5</td>
</tr>
<tr>
<td><strong>Socio-Economic Status:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>141</td>
<td>70.5</td>
</tr>
<tr>
<td>Middle</td>
<td>59</td>
<td>29.5</td>
</tr>
<tr>
<td><strong>Parity:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–2</td>
<td>48</td>
<td>24</td>
</tr>
<tr>
<td>2–4</td>
<td>39</td>
<td>19.5</td>
</tr>
<tr>
<td>4–6</td>
<td>89</td>
<td>44.5</td>
</tr>
<tr>
<td>&gt;6</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td><strong>Menstruation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>11</td>
<td>4.5</td>
</tr>
<tr>
<td>Irregular</td>
<td>168</td>
<td>84</td>
</tr>
<tr>
<td>Post-menopausal</td>
<td>21</td>
<td>10.5</td>
</tr>
<tr>
<td>Multi-sexual partner</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tobacco chewing</td>
<td>122</td>
<td>61</td>
</tr>
<tr>
<td>Oral contraceptive pills</td>
<td>82</td>
<td>41</td>
</tr>
<tr>
<td>Diet</td>
<td>86</td>
<td>43</td>
</tr>
<tr>
<td>Vegetation</td>
<td>86</td>
<td>43</td>
</tr>
<tr>
<td>Non-vegetation</td>
<td>114</td>
<td>57</td>
</tr>
<tr>
<td>Family history</td>
<td>72</td>
<td>36</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table-II presenting complaints of the patients with Carcinoma of the Cervix

<table>
<thead>
<tr>
<th>Presentation complaints</th>
<th>No. of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foul smelling blood vaginal discharge</td>
<td>71</td>
<td>29.5</td>
</tr>
<tr>
<td>Post-coital bleeding</td>
<td>57</td>
<td>26</td>
</tr>
<tr>
<td>Post-menopausal bleeding</td>
<td>97</td>
<td>48.5</td>
</tr>
<tr>
<td>Irregular vaginal bleeding</td>
<td>19</td>
<td>9.5</td>
</tr>
<tr>
<td>Pain lower abdomen</td>
<td>111</td>
<td>55.5</td>
</tr>
<tr>
<td>Backache</td>
<td>137</td>
<td>68.5</td>
</tr>
<tr>
<td>Abdominal distension</td>
<td>107</td>
<td>53.5</td>
</tr>
</tbody>
</table>

2. CATEGORIES RELATED TO AGE GROUPS

<table>
<thead>
<tr>
<th>Normal</th>
<th>Mild dysplasia</th>
<th>Moderate dysplasia</th>
<th>Severe dysplasia</th>
<th>Carcinoma in situ</th>
<th>Invasive carcinoma</th>
</tr>
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<th>Post coital bleeding</th>
<th>Irregular vaginal bleeding</th>
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<th>Abdominal distension</th>
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CELLULAR CHANGES ASSOCIATED WITH INFECTION

<table>
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<th>Age</th>
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<th>Nematode infection</th>
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<td><strong>Total</strong></td>
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DISCUSSION: pooled data from eight case-control studies on invasive cancer and two studies on Carcinoma in Situ (CIS) from four continents suggest that, compared to women who had never given birth, those with three or four full term pregnancies had 2.6 times the risk of developing cervical cancer, women with seven or more births had 3.8 times the risk. Other studies corroborate this positive relationship found between high parity and cervical cancer. The physiologic reason for the association is unclear, possibilities include hormonal factors related to pregnancy or cervical trauma associated with delivery. In our present study, high parity was the prominent finding. This finding shows, about 95% women with gynecological cancer had more than one pregnancy during their lives. This finding is completes agreement with studies by Kjaer in Denmark, Gharono in Benin city, Latifa Shamsuddin in Bangladesh and Muhammed Ikram in Lahore.

In the present study one, smoking and use of oral contraceptive pills (OCPS) are also important risk factors. About 63% of all were tobacco chewer, about 27% of the total had a history of using OCPS. Our present study collaborate with the study of Kjaer in Denmark, in which smoking and oral contraceptive use were important risk factors. In other study, it was found that, smoking appears to be strongly associated with the development of precancerous cervical lesions and cancer. Studies shows at least a two fold risk factor current smokers compared to non-smokers.

Low Socio-Economic Status (SEC) is recognized as a risk factor for many health problems, including cervical cancer, particularly in low-resources settings, women with low SES often have limited income, restricted access to health care services, poor nutrition, and a low level of awareness about health issues and preventive behavior. All of these factors can make them more vulner In our present study, 70% patients belonged to low socio-economic class. 23% belonged to middle and 7% of patients belonged to higher middle classes. These findings are slightly different to those Varghese et al, in which 57% of the patients were in the low income category whose monthly income was under one thousand per month. But if the criteria for low socio-economic group is select as under 3000 per month as in this study, both the studies coincide. This study coincide with the study by Gharoro in which poverty featured prominently. Responsible to illness and preventable diseases such as cervical cancer.

Early age marriage was the other prominent finding in the study. This finding is in completely agreement with study by Varghese et al, in which early age at marriage was found to be the single best predictor of the disease status. On reviewing the studies on the association of age at marriage observed that women marrying earlier than 17 years are at particularly higher risk of developing cervical cancer because adolescent cervix is associated with a high risk of cervical neoplasia compared with later life.

In our present study the peak incidence of carcinoma of the cervix was found in age group 41-50 years. This observation is similar to those of Riaz Ahmed Bhutta et al and Roohi and Sahi. But differ from Parveen et al and Latifa Shamsuddin et al who reported more cases in early age groups. The number of cases after the age of 60 years and above are less in this study as compared to those of Dunn and Schweitzr and El-Senoussi et al. This difference may be due to less life expectancy in our country.
As far as the presenting complaints are concerned, the commonest complaint in the study was foul smelling bloody vaginal discharge while in a study by Shamsuddin et al the chief complaint was excessive vaginal discharge in 50.49% of the patients. In another study by Hilland Galante, the commonest complaint was irregular vaginal bleeding probably this differences due to late representation of the patients when the cervical growth becomes infected leading to foul smelling bloody discharge.

In our present study, 65% of the patients are rural and non-employed. Probably, due to poor hygiene conditions i.e. absence of genital washing and use of sanitary napkins were mostly affected by cervical disorder and inflammatory diseases.

In our study, out of total patients 36% had a history of cervix cancer or their family.

Besides these all risk factors, the role of nutritional status to risk cervical neoplasia has been of recent interest. Initial case control studies in New York state and in Italy suggested a protective effect of vegetables and fruits rich in carotenoids on cervical cancer. We also agree with this because in our present study, we found that many patients about 57% who were affected by cervical cancer were non-vegetarians. So, we think that, dietary intake also likely to be a factor for cervical cancer.

Although it is mentioned that the overall risk of malignancy for cervical cancer is pre-menopausal and post-menopausal women is 6-11% and 29-53%, in our present study, we found that 55% of our patients with cervical cancer were post-menopausal.

In present study, the most frequent age group of patients with cervical carcinoma is 47 years[20]. It is somewhat different from the mean age (50) mentioned in the literature. Also the diagnosis was probably in its early stages.

From our present study two, it was found that, highest number of Normal patients coming for screening after then Inflammation, mild(first stage of cancer) and moderate. Cancer due to illiteracy. Among Stages, stage II was highest no. due to illiteracy. Parity 4-6 number is highest[21]. Economic status below P.L. (Poor) highest. Patients coming having Post menopausal bleeding was highest. pain in lower abdomen was highest. Cellular changes highest due to Nematote infection. Diet highest among Non-vegetarians. Maximum patients take alcohol / Tabbaco between 40 – 60 (age)[22]. Family history of such disease was(40 – 60 / highest). Maximum patients take oral contraceptive pills between age(30 – 40) was highest.[23,24]

**CONCLUSION**

More studies are necessary to assess the nature, age distribution and stages of different gynecologic cancers which can help the physicians preventive and therapeutic modalities in the community.

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Obstructive sleep apnea is the most common sleep disordered breathing with a prevalence of 2 to 4% in the general population. 40% of people with OSA have type 2 diabetes mellitus and prevalence of OSA in diabetic patients is 23%. These disturbances can lead to a cascade of events related to activation of the sympatho-adrenal system, oxidative stress, systemic inflammation, and changes in adipokines - all of which can be important in increasing the risk of cardiovascular disease, hypertension, metabolic syndrome, and diabetes. OSA increases the severity of type 2 DM independent of age and obesity. Treatment with CPAP (Continuous Positive Airway Pressure) reduces insulin resistance and improves glycaemic control thereby indicating a close relationship between diabetes and OSA.

**Definition of OSA:** OSA is the complete cessation of airflow lasting 10 seconds or longer despite continuing ventilatory effort, occurs five or more times per hour of sleep and accompanied by a decrease of at least 4% in arterial oxygen saturation. Obstructive sleep hypopnea is the partial reduction in airflow of greater than 50% lasting at least 10 seconds, occurring 15 times or more per hour of sleep and accompanied by a decrease of at least 4% in arterial oxygen saturation.

**Predisposing factors for OSA:** The predisposing factors for OSA are BMI>40 or >30 with significant comorbidities, age >50 years, male gender, increased waist hip ratio, neck circumference >40.5cm in females and > 43 cm in males, nasal/pharyngeal or laryngeal obstruction, craniofacial abnormalities, neuromuscular disorders, hypothyroidism, acromegaly and use of alcohol or sedatives.

**Diabetes and OSA:** OSA can lead to insulin resistance and pancreatic beta cell dysfunction through many intermediary pathways. The upper airway occlusion during sleep that is characteristic of OSA can be partial, resulting in hypopneas, or complete, resulting in apneas. These disordered breathing events result in several patho-physiological perturbations, including sleep fragmentation, activation of the autonomic nervous system, and chronic intermittent hypoxia. Diabetes may be a cause of OSA, as autonomic neuropathy due to diabetes causes dysfunction of central respiratory motor control of diaphragm and decreased ability of upper airway to maintain patency. On the other hand, sleep fragmentation due to OSA, causes increased sympathetic activity, altered rhythm of cortisol and growth hormone secretion, increases inflammatory markers and reduces leptin levels. This in turn causes reduced beta cell function and increases insulin resistance predisposing to hyperglycaemia and type 2 DM. So, OSA may be preceded by diabetes or vice versa. Devastating effect of each condition makes the duo a dangerous combo necessitating heightened awareness for both. The confounding factors for diabetes and OSA are advanced age, African American and Caucasian ethnicity and obesity. Metabolic syndrome characterised by a blood pressure >130/85 mm of Hg, triglyceride >150 mg/dl, fasting glucose >110 mg/dl, waist circumference >102cm in males and 88 cm in females and HDL < 40mg/dl in males and <50mg/dl in females, is a common link between diabetes and OSA.

**Pathogenesis of OSA:** Occlusion of oropharyngeal airway and loss of muscle tone during sleep causes progressive asphyxia. There is a generation of sub atmospheric pressure during inspiration which exceeds the ability of airway dilator and abductor muscles to maintain airway stability and leads to progressive airway collapse and hypoxia. The
fatty infiltration of pharynx in obesity is also a contributory factor. The severe and progressive hypoxia awakens the person from sleep and the upper airway muscle activity compensates for airway narrowing and high airway resistance. The patient then returns to sleep. The process is repeated 300 to 400 times per night and sleep becomes fragmented leading to the adverse consequences of obstructive sleep apnoea i.e. arterial hypoxaemia, hypercarbia, increased catecholamine levels, intrathoracic pressure swings, polycythaemia, systemic and pulmonary hypertension, cardiac rhythm disturbances and right ventricular failure.

**Potential pathogenic mechanism linking T2DM to OSA** There is a higher prevalence of OSA in patients with T2DM than in non-diabetic patients. This has lead to a question whether a reverse causality exists, whereby diabetes itself leads to some of the features of OSA. Potential mechanisms for the association of OSA among diabetic population include altered ventilatory control and increased oxidative stress. Indeed, diabetic patients with autonomic neuropathy have a higher prevalence of OSA, more severe OSA, longer duration of sleep disordered breathing events and more severe oxygen desaturations when compared with diabetic patients without autonomic neuropathy.\(^1\) Chronic hyperglycaemia can also contribute to the development of OSA by increasing oxidative stress. This in turn can result in structural nerve damage and dysfunction with worsening autonomic dysfunction.

**Symptoms of OSA:** The daytime symptoms of OSA are early morning headache, fatigue, daytime sleepiness, decreased libido, poor memory and concentration, depression and psychological disturbances. During night, the characteristic symptoms are snoring, witnessed apnea, frequent nocturnal awakenings, restlessness, nocturia and unrefreshed sleep.

**General examination:** The common findings during general examination in OSA patients are features of chronic nasal obstruction, obesity, neck circumference > 17 inches in males and 16 inches in females, crowded oropharynx, micrognathia, retrognathia or other anatomic abnormalities.

**Systemic changes:**

1. **Cardiovascular system:** Hypoxaemia and alteration of autonomic tone induces bradycardia during apneic episodes. Long sinus pauses, second degree heart block, ventricular ectopics, other rhythm disturbances, nocturnal angina & MI are common. Pulmonary hypertension during hypoxic pulmonary vasoconstriction leads to increased right ventricular end diastolic pressure and features of right heart failure. Episodic increase in sympathetic tone during apnoeic episodes causes systemic hypertension.

2. **Respiratory system:** Since most of the patients with OSA are obese, the tidal volume may be normal or reduced, functional residual capacity is reduced, lung compliance remains normal, chest wall compliance is reduced due to cephalad shift of diaphragm and
increased weight of chest wall and work of breathing is increased. 3. **Gastrointestinal system**: Due to obesity and sleep apnea, the intraabdominal pressure is raised and there is increased chance of regurgitation of gastric contents. There is increased incidence of fatty infiltration of liver and gall bladder and biliary disease. 4. The incidence of deep vein thrombosis is increased.

**Diagnosis**:
1. **Sleep history**: A good sleep history should be taken regarding the duration, snoring, nocturnal awakenings and daytime sleepiness. A score of 3 in STOP BANG QUESTIONNAIRE and > 11 in Epsworth Sleepiness Scale is indicates OSA.

STOP BANG QUESTIONNAIRE

(= 3 — HIGH RISK)

- S do you Snore loudly, enough to be heard through closed doors?
- T Do you feel Tired or fatigued during the daytime almost every day?
- O Has anyone Observed that you stop breathing during sleep?
- P Do you have a history of high blood Pressure, with or without treatment?
- B Body mass index (BMI) greater than 35 kg/m2
- A Age over 50 years
- N Neck circumference greater than 40 cm
- G Male Gender

2. **Polysomnography**: Polysomnography is performed in a sleep clinic and examines nocturnal sleeping patterns by monitoring physiologic parameters. The parameters studied are **electro oculogram**, **electroencephalogram**, **electrocardiogram**, **pulse oximetry**, **chin muscle** and **two leg electromyograms**, **tracheal sounds**, **blood pressure**, **oral and nasal airflow** and **thoracic and abdominal respiratory effort**. The result is expressed as apnea hypopnea index i.e. number of episodes of apnoea or hypopnea occurring per hour of sleep. 5-15 is mild, 15-30 is moderate and >30 is severe OSA.

**Treatment**:
1. **Behavioural modification**: Weight loss, maintaining circadian rhythm, avoiding alcohol, sedatives and narcotics before sleep.
2. **Pharmacotherapy**: It has little role in treatment of OSA. Nasal congestion can be treated with antihistaminics, decongestants, steroids or saline irrigation.
3. **CPAP or BiPAP**: The gold standard treatment of OSA is the nocturnal use of continuous positive airway pressure CPAP, bilevel positive airway pressure BiPAP or Variable Positive Airway Pressure VPAP. CPAP mask provides positive pressure or a constant stream of compressed air to the pharynx throughout the breathing cycle to overcome the obstructive forces causing pharyngeal collapse. It is the pressure, not the actual airflow that forces the airway to stay open. A pressure of 5 to 20 cm of H2O is given depending upon the severity of obstruction. CPAP machine is composed of a flow generator which provides airflow, an interface or mask placed on the patient’s face and a hose.

Several studies have suggested that CPAP therapy improves insulin sensitivity after 2 days and 3 months in patients with moderate to severe OSA. A number of studies have shown an improvement in HbA1c after 3 months of CPAP therapy. These findings indicate that long term CPAP therapy for OSA may produce significant improvements in glucose metabolism and control in T2DM and even pre diabetes but adequate nightly adherence to CPAP is essential to achieve this outcome"
jaw advancement procedures, nasal polypectomy, septoplasty, genioglossal advancement, nasal turbinate reduction and maxillofacial surgery. The DEFINITIVE treatment is tracheostomy though not preferred.

Given the links between T2DM and OSA, screening for OSA in this population is important as effective treatment of OSA with CPAP may not only improve sleep apnea related symptoms and quality of life but also improve components of metabolic syndrome that contribute to long term cardiovascular and cerebrovascular risk. (1)

References:

5. Giles, TL; Lasserson, TJ; Smith, BH; White, J; Wright, J; Cates, CJ (Jul 19, 2006). “Continuous positive airways pressure for obstructive sleep apnoea in adults.”. The Cochrane database of systematic reviews (3): CD001106.doi: 10.1002/ 14651858. CD001106. pub3. PMID 16855960.
Abstract

Air pollution is the result of various human activities which introduce diverse chemicals, biological materials and particulate matter into the atmosphere or it may be result of naturally occurring substances that exceed the healthy upper limit, causing harm to the living organisms and the environment. Automobile is the major source of air pollution, which is responsible for many acute and chronic respiratory diseases, allergies and heart diseases. It also contributes to global warming, which poses a threat to the whole planet. ‘Carbon footprint’ is the amount of carbon dioxide a person is responsible to put into the atmosphere. Air pollution can be limited at personal level as well as on a large scale at Government level by taking various measures to decrease the emission of carbon dioxide and other harmful gases in to the atmosphere.

Key Word: Air pollution, respiratory diseases, global warming

Introduction

According to the Environmental Protection Agency, an average adult breathes over 3,000 gallons of air every day and a child breathes even more air. Air pollution remains a major cause for human illness. According to the World Health Organization, 2.4 million people die each year due to air pollution related diseases. Respiratory diseases account for over 10% of all hospital admissions. Respiratory illnesses due to air pollution are quite common in our country, which is responsible for a large number of disability and death with definite impact on the economic system and a significant loss of disability adjusted life years (DALY). Prompt identification and treatment of air pollution related diseases are crucial in maintaining health of individuals in particular and the population in general. However, prevention of air pollution is the key in limiting large number of disease burden and human suffering. Action at personal, community and Government level is vital in this direction.

Pollutants in the Air

Air or atmospheric pollutants are foreign substances introduced in to the atmosphere by human activities having damaging effects on the living organisms and the environment. These can be naturally occurring substances present in the atmosphere, but in excess amount causing harm to human health. These pollutants may originate from outdoor or from indoor. Some of the pollutants are visible and some are invisible.

Atmospheric pollution occurs not only due to chemicals such as gases and particles but may also be due to other sources such as noise, heat and light.

Sources of Air Pollution

There are mainly three types of sources of Air Pollution, 1. Mobile, 2. Stationary, 3. Indoor. Mobile source of air pollution is mostly caused by automobiles. Stationary sources are industries, factories, refineries etc. Indoor sources are buildings, gas stoves, passive smoking etc (Table 1).

Table 1. Sources of Air Pollution

<table>
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<th>Sources of Pollutants</th>
<th>Mobile</th>
<th>Stationary</th>
<th>Indoor</th>
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<tbody>
<tr>
<td>air pollution</td>
<td>Automobiles</td>
<td>Industries, Factories, Refineries</td>
<td>Buildings, Gas Stoves, Passive Smoking</td>
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</tbody>
</table>

The major chemicals that pollute atmospheric air are sulphur dioxide (SO₂), nitrogen dioxide (NO₂) and ozone, which mainly originate from mobile and stationary sources. These chemicals when inhaled, adversely affect the respiratory system of human beings causing various illness. Pollutant induced oxidant injury causes airway inflammation, increased susceptibility to infection, enhanced allergic responses and remodelling of airways in chronic cases, leading to various acute and chronic respiratory diseases.
Sulphur Dioxide

Sulphur dioxide acts as air way allergen. It causes broncho constriction and bronchial asthma. Apart from its action on the human respiratory system, it is known to cause devastation by acid rain.

Nitrogen oxides

Nitrogen dioxide is extremely toxic and a well-known air pollutant. It is expelled from motor vehicle exhaust, power plants, gas stoves and kerosene space heaters. It causes airway injury. It impairs lung defence and predisposes the lungs for infection. It enhances response of the bronchial tree to allergen.

Ozone

Ozone is formed when volatile organic compounds present in the motor vehicle exhaust react with nitrogen oxides in the presence of sunlight. Therefore it is known as a secondary pollutant. It is a strong irritant that can cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. It is responsible for reduction in resistance to infection, decreased lung function, increased fatigue and aggravating respiratory diseases such as bronchitis, emphysema and asthma.

Automobile Smoke

Automobile smoke is the greatest source of air pollution, causing many adverse health effects including decreased lung function, exacerbation of asthma, chronic obstructive pulmonary diseases, and childhood cancer.

Particulate Matters

Particulate matters consist of soot, smoke, metals, nitrates, sulphates, dust are known respiratory irritants that can injure the lungs directly or trigger inflammation in the lungs, when combined with other environmental factors. Size of these particles determines site of lodgement in the respiratory tract. Larger (coarse) particles are more likely deposited in the upper airways; whereas smaller (PM2.5 or fine) particles penetrate deeply into the alveoli of lungs, with varying health effects that depend on the chemical or physical nature of the particles.

Smog

Smog is a mixture of fog and smoke, with a layer of polluted air, containing particulate matters, biological materials, and chemicals. It is caused by the action of solar ultra violet radiation on atmosphere, polluted with hydrocarbons and oxides of nitrogen especially from vehicular exhaust. Not only it causes respiratory illness, but also it contributes to global warming and acid rain.

Carbon monoxide

Carbon monoxide (CO) is a toxic yet non-irritating gas produced by incomplete combustion of fuel such as natural gas, coal or wood and vehicular exhaust. It has about 20 times more affinity for blood haemoglobin and inhibits use of oxygen by the tissues.

Carbon dioxide

Although it plays an important role in the development and sustainability of life in this planet, it is a green house gas and is the main pollutants of the ambient air responsible for global warming endangering public health.

Volatile organic compounds

Volatile organic compounds (VOC) are a well-known outdoor air pollutant, which is categorized as either methane (CH₄) or non-methane (NMVOCs). Methane is an extremely efficient greenhouse gas which contributes to enhance global warming and the aromatic NMVOCs like benzene, toluene, xylene are suspected carcinogens on prolonged exposure and may lead to leukaemia.

Chlorofluorocarbons

Chlorofluorocarbons (CFCs) are used as refrigerants and aerosol propellants, having deteriorating effect on earth’s ozone layer.

Pathogenesis of Respiratory Diseases

Deposition and damage by gaseous pollutants (O₃, NO₂, SO₂) on the airways depends upon it’s water solubility. Nose serves as an important defence organ for highly soluble gases. There is efficient defence system to remove the pollutants inhaled trans-nasally with the help of the mucus membrane and the turbinates in the nose, but during exercise the amount of delivery of pollutants at lower respiratory tract increases due to great increase in inspiratory flow rate along with the amount of inhaled air over the time. Exercise also increases the proportion of air inhaled through mouth leading to various respiratory problems.
Deposition of particles on the air ways depends upon size of particle and pattern of breathing, which influences the site of deposition of particles. Cough reflex, mucociliary escalator and alveolar macrophages are important defence mechanism for clearance of the deposited particles. Mucociliary system depends upon secretion of glyco proteins, maintenance of liquefaction and coordinated function of airway cilia for effective removal of particles. Impairment of any of the above functions by any congenital or acquired diseases affecting mucus and water secretion (cystic fibrosis, chronic bronchitis) or ciliary function (dysmotile cilia syndrome) hampers the clearance of particle leading to various adverse health effects.

Several anti oxidant defence mechanism are present in our body to detoxify the reactive products due to air pollutants especially particles and $O_3$, known to increase the oxidative burden of the lung. But an imbalance between the production of reactive oxygen species (ROS), reactive nitrogen species and the anti oxidant capacity of the person leads to a state of “Oxidative Stress”, that contributes to the pathogenesis of several respiratory diseases.

Respiratory Diseases Caused By Air Pollution

Individual reactions to air pollutants depend on genetics, health status of the individual, the type of pollutant the person is exposed to and the degree of exposure. The health effects caused by air pollutants may range from subtle biochemical and physiological changes to difficulty in breathing, wheezing, coughing and aggravation of existing respiratory and cardiac conditions, which result in increased medication use, more hospital admissions and premature death.

Polluted air can cause temporary symptoms like Irritation of eyes, nose, throat and respiratory tract, cough, chest tightness or breathing difficulties during exercise or outdoor activities in healthy persons. Air pollution also aggravates the health problems of elderly and increases mortality in persons with respiratory allergy and asthma. It also increases the chance of development or progression of chronic respiratory illnesses including, chronic obstructive lung diseases (bronchitis, emphysema lung), lung cancer and heart diseases. Air pollutants also significantly affect lung development, creating an additional risk factor for developing lung diseases later in life. Some of the important respiratory diseases due to air pollution are:

Allergies

There is a relatively strong relationship between poor air quality and new episodes of runny nose (rhinitis), both in terms of initiation and prolongation of symptoms. Exposure to ground level ozone has been found in many studies to heighten the sensitivity of immune system of the person to both allergens and infection.

Asthma

Asthma is one of the most prevalent chronic serious conditions both in children and in adults which is aggravated by exposure to polluted air. Airways of lungs in asthma become inflamed and swollen, blocking the flow of air causing symptoms like shortness of breath, wheezing, coughing and tightness in the chest due to variety of factors including exercise, infection, pollen, allergies and stress. It is also aggravated by exposure to smog, ozone, carbon monoxide, sulphur dioxide and nitrogen oxides etc. Pollutants such as sulphur dioxide constrict the smaller airways in the lungs and makes breathing harder even for healthy people which can set off a serious and life-threatening asthma attack, with someone prone to asthma. Ozone irritates the lungs at concentrations which are common in urban settings, particularly in summer months aggravating asthma and other lung diseases.

Chronic Obstructive Pulmonary Disease (COPD)

COPD is a common and serious health problem amongst the elderly. Though smoking is responsible for approximately 80% of all COPD cases, air pollution is known to advance the development of COPD by causing inflammation of the airways and also by the immunological response to pollutants in the air. It has been seen that, COPD-related trips to the emergency room increases, when air quality is poor. COPD causes shortness of breath, coughing and an increased production of mucous. As the disease progresses, people with COPD experience a reduced quality of life and limited activity levels. As complete cure is not possible for the people suffering from COPD, a healthy lifestyle and appropriate medication can help them. Chronic bronchitis and emphysema are common forms of COPD.
**Chronic bronchitis**  
Chronic bronchitis is caused by inflammation of the cells lining the inside of bronchi, which increases the risk of infection and obstructs the airflow in and out of the lungs.

**Emphysema**  
Emphysema is a chronic disorder in which the walls and elasticity of the alveoli are damaged.

**Pneumonia**  
There is a strong correlation between an increase in the rate of pneumonia and motor vehicle exhaust levels in the urban area.

**Cystic Fibrosis**  
It is a serious hereditary disease affecting the mucous glands found throughout the body, including in the lungs. It is further aggravated by high levels of air pollution causing increased number of lung infections and breathing problems.

**Lung Cancer**  
Though Lung cancer is mainly associated with tobacco smoking, air pollution is important amongst the other risk factors responsible for developing lung cancer. Particulate matter and ozone in particular may increase the mortality due to lung cancer. Some toxic chemicals released in the air such as benzene or vinyl chloride are highly toxic and can cause cancer, birth defects, long term injury to the lungs, as well as brain and nerve damage.

**People Most Susceptible To Air Pollution**  
People most susceptible to air pollution are persons with heart disease such as coronary artery disease, congestive heart failure, persons with lung disease like asthma or chronic obstructive pulmonary disease (COPD), pregnant women, children under age 14 (whose lungs are still developing), outdoor workers and athletes who exercise vigorously at outdoor.

**Vulnerability of Children to Air Pollution**  
Children are more susceptible to the effects of air pollution. There are various factors that contribute to the increased sensitivity of children to air pollutants. Children inhale relatively more air compared to adults, also they have large lung surface area relative to their weight and mouth breathing by the children bypasses the filtering effects of the nasal passages, allowing pollutants to travel deeper into the lungs. Children ignore the early symptoms due to the effect of air pollution leading to attacks of increased severity. They also spend more time at outdoors, particularly in the afternoons and during the summer months when ozone and other pollutant levels are at their highest level, which may have adverse impact on lung development of children. As the enzyme and immune systems that detoxify pollutant are immature in children, it may lead to various health problems in children.

**Permanent Health Effects Due To Long-Term Exposure to Polluted Air**  
Polluted air causes some permanent effects due to the long term exposure, though the effects vary with the type of pollutants exposed, duration of exposure and health condition of the person. Permanent effects include loss of lung capacity, decreased lung function, and accelerated aging of the lungs, development of diseases such as asthma, bronchitis, emphysema and cancer, which reduces the life span.

**Other Effects Of Air Pollution**  
Toxic air pollutants and the chemicals that form acid rain and ground-level ozone can damage trees, crops, animals, fish and other aquatic life. Air pollution damages buildings, monuments, and statues, in addition to damaging the natural environment. Air pollution has a major economic impact due to lost days at work and school each day and each year. It is also responsible for reduced agricultural crops and commercial forest yields by many folds, causing a significant loss to the individuals in particular and to the society in general.

**Ways to Curb Air Pollution**  
There are various air pollution control technologies and land-use planning strategies available to reduce air pollution. Various measures to limit the emissions of carbon dioxide and other greenhouse gases can be taken up at personal and Government level. Some of them are, switching to clean power sources such as wind power, solar power, hydro power which does not cause air pollution. Use of renewable energy is an effective way to control air pollution. Kyoto Protocol by the Government, which is an agreement between countries to cut down the carbon dioxide emissions and to put taxes on carbon emissions or higher taxes on gasoline. Efforts to reduce pollution...
from auto mobile sources include primary and permissive regulations, increased fuel efficiency, to use cleaner fuels and electric vehicles.

Sincere and responsible action at individual level and also at community level, by NGOs and by the Government can only curb the dreadful menace.

Bibliography:
Germ cell tumours of the ovary
Dr. S.K. Giri

Germ cell tumours of the ovaries are derived from the primitive germ cells of the embryonic gonads and dysgerminoma represents the most common ovarian malignant germ cell tumour. Although 20% to 25% of all benign and malignant ovarian neoplasms are of germ cell origin, only about 3% of these tumours are malignant.

WHO classification of Ovarian Germ Cell tumours.¹
1. Primitive Germ Cell tumours
   A. Dysgerminoma
   B. Yolk sac tumour
   C. Embryonal carcinoma
   D. Polyembryoma
   E. Non-gestational choriocarcinoma
   F. Mixed Germ Cell tumour
2. Biphasic or Triphasic teratoma
   A. Immature Teratoma
   B. Mature Teratoma
   1. Solid
   2. Cystic
      - Dermoid Cyst
      - Fetiform teratoma (homunculus)
3. Monodermal tetratoma and somatic type tumours associated with dermoid cyst
   A. Thyroid tumour
   1. Struma ovarii
      a. Benign
      b. Malignant
   B. Carcinoid
   C. Neuroectodermal tumour
   D. Carcinoma
   E. Melanocytic
   F. Sarcoma
   G. Sebaceous tumour
   H. Pituitary type tumour
   I. Others

Presenting symptoms
In the first two decades of life, almost 70% of ovarian tumours are of germ cell origin and one-third of these are malignant. It is frequently diagnosed by finding a palpable abdominal mass in a young lady who complains of abdominal pain approximately in 85% of cases. The following are the symptoms of germ cell tumours in order of frequency²:
- Acute abdominal pain
- Chronic abdominal pain
- Asymptomatic abdominal mass
- Abnormal vaginal bleeding
- Abdominal distention

Diagnosis-
- The initial symptoms and signs of germ cell ovarian tumors are usually a sub acute pelvic pain and feeling of pelvic pressure because of pelvic mass and menstrual irregularities.
- Adenexal mass measuring 2 cm or larger in premenarcheal girls or 8 cm or larger in other premenopausal patients require surgical exploration.
- Postmenarcheal patients having predominately cystic lesions up to 8cm diameter may be observed or given Oral contraceptives for two menstrual cycles.
- Diagnostic work-up should include pelvic ultrasound, abdomino-pelvic computed tomography (CT-scan) and chest X-ray. In young patients,
- Serum human chorionic gonadotropin (hCG), α-fetoprotein (AFP) titers and lactate

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dehydrogenase (LDH), complete blood count and liver and renal function tests should be carried out.

- A preoperative karyotype should be obtained on all pre-menarche girls because of the propensity of these tumors to arise in dysgenetic gonads, particularly those with dysgerminomas.

**Management**

Germ cell tumours are staged the same as epithelial ovarian cancer. Malignant Germ cell tumours tend to be quite large. Bilaterality of tumour involvement is exceedingly rare except for dysgerminoma. Surgical staging is the cornerstone in management of malignant GCT. Extent of surgery depends on the disease status, fertility consideration and age.

As the tumour on diagnosis is usually in early stage and bilaterality is rare, conservative surgery is almost always possible in MGCTs. Fertility- sparing unilateral salpingoophorectomy with preservation of contralateral ovary and uterus can be performed in most cases. Contralateral ovary if looks normal may be left untouched. If contralateral ovary is abnormally enlarged, a biopsy or cystectomy should be performed. Even in presence of metastatic disease in contralateral ovary, fallopian tube and uterus, they may be left in situ after resection of the disease areas when fertility is an issue in case of dysgerminoma, because of the sensitivity of the tumour to chemotherapy\(^1\). Preserved ovary should be covered with Interceed to avoid adhesion. However, in case of pure dysgerminoma, biopsy may be considered, as there may be occult metastasis. In case of dysgenetic gonads (established by preoperative karyotyping)/or there is clinical diagnosis of hermaphroditism phenotype, then bilateral salpingoophorectomy is indicated. Uterus may be preserved for future pregnancy probability with ART techniques.

**Surgical staging**

Steps of staging procedure

1. Vertical incision-
   a. Adequate exposure,
   b. Appropriate staging biopsy,
   c. Resection of large pelvic tumour
   d. Resection of metastatic disease in upper abdomen

2. Ascites if present should be collected for cytology, in absence of ascites, saline wash fluid collected from pelvis and paracolic gutters for cytology before manipulation of the intraperitoneal content.

3. Exploration of pelvic and abdominal organs done with excision of the suspected areas done for biopsy.

4. Ovarian tumour and other pelvic organs should be examined, assess size, consistency, capsular rupture, adhesion, external excrescence etc.

5. If disease limited to ovary or pelvis, random staging biopsies of the structures at risk should be performed- the areas are-1. Omentum, 2. Peritoneal surface of paracolic gutters,cul-de-sac, lateral pelvic walls, vesicouterine reflection, and subdiaphragmatic areas. Any adhesion should be sampled.

6. Unilateral pelvic lymphadenectomy and careful palpation and biopsy of the enlarged para-aortic nodes are particularly important part of the staging in dysgerminoma, as this tumour often metastasises to PA node around renal vessel\(^1\). There is no evidence that systematic pelvic and para-aortic lymphadenectomy in other type of MGCT has any advantage, however, these areas should be palpated and sampling of suspicious nodes to be done and documented.

7. Most patients report after being inadequately staged with inadequate information. The option in such cases are-
   a. Repeat Laparotomy for surgical staging
   b. Adjuvant chemotherapy
   c. Regular pelvic and abdominal USG
   d. Regular surveillance with Tumour markers-LDH, AFP, and hCG

**Management algorithm of Prepubertal pelvic mass\(^3\)**

**Adjuvant Chemotherapy\(^4\)**

1. Risk of relapse with surgery alone is unacceptably high for most women with germ cell tumours.

2. Stage 1A grade 1 immature teratomas may be observed as they rarely relapse.
3. Stage 1 dysgerminomas may be observed, as they can generally be cured with surgery at the time of relapse.

4. For most other women, 3-4 cycles of BEP are recommended.

5. Dysgerminomas are particularly chemo-sensitive.

6. High-dose chemotherapy with stem-cell rescue may cure some women who relapse after initial chemotherapy.

**Follow-up**

1. Every 1-2 months for 1st year, every 2 months for 2nd year, every 3 months for 3rd year, every 4 months for 4th Year, every 6 months for 5th year, and once in a year subsequently.

2. Each visit - medical history, clinical examination, tumour markers estimation, radiological evaluation when indicated.

3. 90% of relapses occur within 2 years which can be treated successfully.

**References:**


Case Report on A Rare Case of Clear Cell Carcinoma Cervix in a Young Patient

Dr Bhagyalaxmi Nayak, Dr. Sagarika Samantaray, Dr. Dipti Rani Samanta, Prof. S.K. Giri

**INTRODUCTION:** Cervical Clear cell adenocarcinoma (CCAC) is a rare histological subtype of cervical cancer accounting for 4% of all adenocarcinomas of uterine cervix. Due to association with DES exposure in some patients, this subtype may have a younger age at presentation than other histological sub types. This subtype can sometimes present in the paediatric age group. The tumour is composed of clear or hobnail cells arranged in solid, tubulocystic or papillary patterns. There has been some association with in utero DES(diethylstilbestrol) exposure in some patients (~6%). Unlike other types of cervical cancer, association with HPV DNA in CCC is doubtful. The current approach to management for patients with CCAC is akin to other adenocarcinomas of cervix.

**CASE REPORT:** A 29 year old female patient, unmarried, came with complaints of irregular bleeding per vaginum since 6 months. Her previous menstrual cycles were regular. On per abdominal examination no abnormality was detected. On per speculum examination, a mass of about 5cm x 5cm was seen. On per vaginal and per rectal examination left parametrium was involved up to the pelvic wall and right medial parametrium was involved. A provisional diagnosis of **cancer cervix III B** was made and cervical biopsy was taken.

**CT scan** showed a heterogenous mass of size 5.5 x 5.2 x 6.2 cm in the lower segment of the cervix with multiple exudative loculated peritoneal collection with multiple enlarged paraaortic and aorto caval lymph nodes with bilateral pleural effusion. Other blood investigations were within normal limits.

Cervical smear was reported to be suspicious. Cervical biopsy revealed **Clear Cell Carcinoma Cervix**.

Patient received 3 cycles of Neoadjuvant Chemotherapy paclitaxel and carboplatin. Assessed for operability at the end of 3 cycles the response was not encouraging. Hence 3 more cycles were continued. One month follow up after six cycles of CT, per vaginal and per rectal examination revealed cervical growth of about 8cm x 4cm, bilateral parametrium stretched and rectal mucosa adherent to the growth. The response to chemotherapy was very poor.
CECT revealed solid cystic mass of size 5.9 x 5.3 cm with urinary bladder and rectal wall infiltration by carcinoma. Bilateral ovaries were enlarged 6x6cm, no ascites. Enlarged left paraaortic and preaortic lymph nodes in supraumbilical and right iliac fossa region, with no pleural effusion.

Chest X-Ray – normal study

Patient planned for palliative radiotherapy. Bilateral salpingoophorectomy was undertaken prior to RT. HP study of ovaries were clear cell carcinoma.

Case is presented for its rarity. It is recommended to include these cases in clinical trials.

REFERENCES:
A rare case report on
Malignant Brenner Tumor of Ovary
(Case Report & Review of Literature)

Dr Ashok Kumar Padhy¹, Dr. Dash Rabinarayan², Dr Janmejay Mohapatra¹

Introduction:
Brenner tumors are rare tumors comprising 1-2% of ovarian neoplasms. Malignant Brenner tumor is much rarer & closely resembles transitional cell carcinoma of Urinary bladder with squamous and undifferentiated variants. Transitional cell carcinoma, however may also occur as primary tumour of ovary and only presence or absence of areas with benign or borderline Brenner tumour differentiates the two. These tumors are believed to arise from urothelial metaplasia of ovarian surface epithelium. Most often found incidentally in women between their 5th and 7th decades of life. The malignant components of the tumor, which shows heterogeneous epithelial growth and atypia with intervening stroma, consist of transitional cells, squamous or undifferentiated carcinoma or an admixture of these types. Because of the rarity and variable histological criteria, there is no established tumor marker for malignant Brenner tumors.

Case Report:
70Yrs, P6L4, Postmenopausal HF presented to AHRCC with complaints of swelling of abdomen & loss of appetite for 4months. Her medical history was uneventful l. General examination revealed moderate pallor & chest, CVS did not reveal any abnormalities. Per abdomen examination revealed an irregular mass of 30wk size, cystic with restricted mobility. Per speculum revealed Cxervix, vagina healthy & on per vaginal examination there was a right adnexal mass with lower pole felt through Right fornix, POD was free. She was admitted & work up done in the line of ovarian tumor. Tumor marker analysis showed Ca-125 30.18 IU & CEA - 0.9 IU. Her upper GI Endoscopy & Chest X-Ray revealed no abnormality. Pre-operative USG showed a right adnexal cystic mass of 18*11cm, no septa, no ascites with normal uterus & left ovary. Right ovary could not be imaged. Doppler USG showed low resistance flow over the solid component with RI < 0.2. It was diagnosed as a case of ? Benign ovarian mass & intra operative IMPRINT CYTOLOGY was planned in view of the Doppler findings. Staging laparotomy was done on 07.03.2012. Abdomen opened by midline vertical supraumbilical incision. On examination, no free fluid in peritoneal cavity, POD, para colic gutter, under surface of diaphragm, liver, spleen, omentum looked normal. There was a Right Ovarian Tumor 20cm*20cm with intact capsule with normal uterus & Left Ovary. IMPRINT SMEAR sent which showed presence of malignant cells but not cell of origin. TAH BSO TOTAL OMENTECTOMY APPENDICECTOMY BLPALND upto Renal vein was done & specimens sent for HP study. Her stitches were removed on 10th post-op day. HP REPORT came as MALIGNANT BRENNER TUMOR with POSITIVE OBTURATOR & PARA- AORTIC NODES & CYSTIC HYPERPLASIA OF ENDOMETRIUM WITH UNREMARKABLE MYOMETRIUM.

Patient received 6 cycles of adjuvant chemotherapy (Paclitaxel + Carboplatin) & followed up & is having no evidence of disease till August 2014.

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Discussion:

Brenner tumor of ovary is a solid ovarian tumor that is generally asymptomatic. It is named for Fritz Brenner, who characterized it in 1907\(^1\). The term “Brenner tumor” was first used by Robert Meyer, in 1932\(^2\). Although they are predominantly solid on imaging and pathologic examination, association with serous and mucinous cystadenomas is up to 30%\(^3\). It is usually an incidental pathological finding. Among symptomatic patients, common symptoms include vaginal bleeding, a palpable pelvic mass, and pelvic pain. Most of the time it is found to be unilateral. Bilaterality is seen only in 5–7% of the cases.\(^4\) Tumour markers like CA 125, CA 72-4, SCC have been employed for the diagnosis of these tumours. Brenner tumors have been reported to co-exist with transitional tumors of urinary bladder\(^5,6\). Malignant Brenner tumor may be solid or cystic with mural nodules; they usually do not have any distinctive features.\(^7\)

The criteria proposed by Hull and Cambel in 1973 for the diagnosis of malignant Brenner tumour\(^8\) are as follows:

1. Frankly malignant histologic features must be present.
2. There must be intimate association between malignant element and a benign Brenner tumour.
3. Mucinous cystadenoma should preferably be absent or must be well separated from both benign and malignant Brenner tumour.
4. Stromal invasion by epithelial elements of malignant Brenner tumour must be demonstrated.

Malignant Brenner tumors may affect surrounding tissue and metastasize into other structures, but such incidents are so rare that a standard treatment has not been developed. Even malignant Brenner tumors, if diagnosed early, are usually candidates for complete surgical resection.

Conclusion:

- All ovarian mass in elderly population should be suspected & evaluated in line of malignancy.
- In early stage and with favorable histology, ovarian cancers are curable by surgery alone.
Optimal surgery in advanced disease and surgical staging in early stages is cornerstone of management. Chemotherapy is effective as adjuvant/neoadjuvant.

- IP is a new and effective alternative to IV CT.
- Newer chemotherapeutic agents and targeted therapy are real hope for future OVARIAN CANCER – IT WHISPER SO LISTEN CAREFULLY.

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Spindle Cell Sarcoma of Vagina,
A Rare Case Report and Review of Literature
Dr Ashok Kumar Padhy, Dr Rohani Nayak, Dr Janmejay Mohapatra, Dr B L Nayak

ABSTRACT:
Primary malignancy of the vagina is unusual and sarcoma as the primary is rarer. The majority of sarcomas are diagnosed at an advanced stage. Histopathological grade is the most important factor to predict the outcome. Surgical resection is the main stay of treatment. The role of adjuvant radiotherapy and chemotherapy is controversial. Adjuvant radiotherapy should be given in case of high grade tumours, low grade tumours and post operative surgical margin positive cases. We reported a case of spindle cell sarcoma of the vagina in a 57 year old woman who was treated with 3 cycles of neoadjuvant chemotherapy followed by surgical resection with adequate margin ,doing well on 6 months follow up.

Keywords: spindle cell sarcoma, resection, chemotherapy

INTRODUCTION:
Malignant tumours of vagina are extremely rare and accounts for 2% of all gynaecological malignancies [1]. One of the rare varieties is spindle cell sarcoma of vagina having a very poor prognosis. Newer diagnostic techniques like immunohistochemistry are now available to pick up even submicroscopic diagnosis of many pathological lesions. We report a case of spindle cell sarcoma which was successfully treated with neoadjuvant chemotherapy due to large size followed by wide Local Excision of the lesion.

CASE REPORT
A 56 yr postmenopausal female attended Gynec oncology OPD with complains of something coming out of vagina and pain in periurethral region for last 2 months. She had undergone vaginal hysterectomy 10 yr back for abnormal uterine bleeding. She had all vaginal deliveries with bilateral tubal ligation done 30 yr back after her last child birth. On examination the patient was average built with stable vitals. Per abdomen examination found no abnormality. Per speculum examination showed a nodular growth of 2x2 cm in the vault in suburethral area, firm in consistency, non-ulcerated, well defined margin, not fixed to base, did not bleeds on touch. On vaginal examination vault was healthy. Per rectal examination revealed soft pelvis.

Routine blood counts, urine examination, and chest X ray findings were normal. Cytology from the lesion revealed inflammation. Ultrasound of abdomen and pelvis showed thickened urinary bladder wall with 117 ml residual urine. Trans Vaginal Sonogram showed a hypoechoic mass of size 20x15 mm in anterior wall of lower vagina and on Doppler the mass showed minimal vascularity of low resistance pattern(PS=27.7 cm/sec, ED=6.1 cm/sec) radiologically suggestive of malignancy. Biopsy was taken from growth and histopathological study of the growth showed spindloid squamous cell carcinoma of vagina with a differential diagnosis of spindle cell sarcoma of vagina. Immunohistochemistry was performed and revealed Pan CK-negative, Vimentin strongly positive, Desmin negative confirming diagnosis of spindle cell sarcoma. Further investigations ruled out distant metastasis. She was planned for Surgery in the form of Wide local Excision with adequate margin .To our surprise She lost for follow up for next 6 months again reported to us with a larger mass than the previous one. Treatment modality changed after a lots of discussion with medical Oncologists and radiation Oncologists and she was then advised for 3 cycles of Neoadjuvant chemotherapy in the form Paclitaxel and Carboplatin followed by wide local excision adequate margins. She was given 3 cycles of adjuvant Chemotherapy. She was under follow up for last 9 months after completion of last adjuvant chemotherapy detected to be disease free at present.

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DISCUSSION:

Primary cancer of vagina is rare and represents 1-4% of all genital malignancies. 75-90% are squamous cell type, 5-10% are adenocarcinoma, 3% are melanoma, and 3% are sarcomas [2].

TAUSSIG in 1935 quoted primary cancer of vagina is rare and almost always universally fatal [3]. Sarcomas are rare mesenchymal neoplasms that arise in soft tissues and bone. Primary sarcomas of the vagina are Rhabdomyosarcoma, Leiomyosarcoma, Malignant fibrous histiocytoma, Haemangioepicytoma, Malignant schwannoma, endometrial stromal sarcoma, Fibrosarcoma. Up to 1985, only 68 cases of primary sarcoma of the vagina were reported. Vaginal sarcomas should be distinguished among themselves as to their precise pathogenetic origin by using special stains, electron microscopy, and immunohistochemistry. Various immunohistochemical markers are used for confirmation of a given phenotype or differentiation or histogenesis. Sarcomas of the elderly are leiomyosarcoma, angiosarcoma, spindle cell sarcoma, alveolar soft part sarcoma, fibrosarcoma, and mixed mesodermal tumours of the vagina. Leiomyosarcoma is the most common type of sarcoma in the vagina.

Several factors have been demonstrated to play a role in recurrence including tumour diameter, cytologic atypia, mitotic index, and infiltrating margin. The majority of the cases presents as asymptomatic vaginal mass. The patient may present as a lump near introitus which may cause problems with micturition, defecation or intercourse. Bleeding or discharges are late features. Complete history and physical examination should be performed including speculum and per vaginal examination, cervical cytologic examination, endometrial biopsy when indicated, colposcopy and biopsy of the vaginal tumour. Pre-treatment evaluation may include the following studies: chest x-ray, intravenous pyelogram, cystoscopy, proctosigmoidoscopy, contrast enhanced CT and MRI scan of the abdomen and pelvis [6]. The treatment plan depends on the patient’s age and general health state, the tumour location and size, the need to maintain the function of the vagina and stage of the disease. Prognosis is related to the stage of the disease [American Joint Commission on Cancer staging system for sarcomas] [4]. Although there are no specific
treatment guidelines, the mainstay of therapy has been surgical excision followed by chemotherapy. Wide local excision with reconstructive surgery, Vaginectomy with lymphadenectomy Radical hysterectomy, Pelvic exenteration and Laser surgery [7] are the different surgical options. Neoadjuvant chemotherapy has been used in patients who have bulky tumours in which surgical debulking had not been optimal. Currently, some believe that neoadjuvant chemotherapy can also be used as primary therapy followed by surgical debulking regardless of the tumour size (requires evidence). It is thought that this treatment strategy can optimize surgical excision, giving rise to less morbidity, and a longer disease-free interval (Temkin et.al, 2007).

The role of adjuvant radiotherapy and chemotherapy in primary vaginal sarcomas is unclear due to paucity of data. According to Hensley, surgical resection plus adjuvant radiotherapy should be given in case of high grade tumours and in case of positive surgical margins to prevent local recurrence and also requiring chemotherapy in persistent or recurrent disease [8]. Due to high risk of systemic relapse, chemotherapy has been utilized. A meta-analysis showed ifosfamide and adriamycin based combination chemotherapy resulted in reduction of death risk from 41% to 30% [9]. Marginal efficacy of chemotherapy in terms of local recurrence, distant metastasis and overall survival found in localized resectable soft tissue sarcoma. A study showed both chemotherapy and radiotherapy had no affect on outcome in late or recurrent disease [10].

CONCLUSION:

Spindle cell sarcomas are rare malignant tumours of vagina with poor prognosis. Most of cases present with lump in vagina with various dysfunctions. Recently modalities like electron microscopy and immunohistochemistry are most important tools used to reach at a submicroscopic diagnosis. Duty to paucity of the data, there is no standard treatment guidelines. Surgery with or without radiotherapy have resulted in improved outcome. Neoadjuvant Chemotherapy followed by Wide Local excision are reserved bulky lesions to facilitate surgery to get a good margin. A large number of case data in series or study with longer duration of observation are necessary to draw a standard treatment guideline.

REFERENCES:
3. Ibid.505.
Dysgerminoma Ovary
Dr. Bhagyalaxmi Nayak

Patient 24 years female diagnosed as germ cell tumour ovary. Primary fertility sparing surgery done. Post operative diagnosis Dysgerminoma Ovary. Came back after one month with dyspnea and swelling neck. Large Virchow’s node and lung metastasis.

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Manuscript submission: Check List for Contributors

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2. Copyright statement signed by all the authors.
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6. Article proper (double spaced on A/4 size paper). Maximum word limit for Original or Review Article is 5,000 and Case Report is 2,000.
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9. Maximum number of references for Original articles - 10, Short articles-5,
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