<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forensic Odontology – A New Perspective</strong></td>
<td>1</td>
</tr>
<tr>
<td>Shamim T, Ipe arughese V, Shameena PM &amp; Sudha S</td>
<td></td>
</tr>
<tr>
<td><strong>Reliability of Postmortem Lividity as an indicator of Time Since Death in Cold Stored Bodies</strong></td>
<td>5</td>
</tr>
<tr>
<td>Vrinda J Bhat, Vikram Palimar &amp; Pradeep Kumar G</td>
<td></td>
</tr>
<tr>
<td><strong>Instruction to Authors</strong></td>
<td>8</td>
</tr>
<tr>
<td><strong>Scenario of road traffic Injuries, Legal Issues and insurance in Nepal</strong></td>
<td>9</td>
</tr>
<tr>
<td>Yadav BN</td>
<td></td>
</tr>
<tr>
<td><strong>Sociodemographic Profile of Substance Abusers Attending A De-Addiction Centre in Ghaziabad</strong></td>
<td>13</td>
</tr>
<tr>
<td>Singh Brijender, Singh Vijender &amp; Vij Aarti</td>
<td></td>
</tr>
<tr>
<td><strong>Library Recommendation Form</strong></td>
<td>16</td>
</tr>
<tr>
<td><strong>Alcohol-Related Traumatic Deaths in Transkei Region, South Africa.</strong></td>
<td>17</td>
</tr>
<tr>
<td>Meel B L</td>
<td></td>
</tr>
<tr>
<td><strong>Notes and News</strong></td>
<td>22</td>
</tr>
<tr>
<td><strong>Determination of Lead in Forensic Samples By Atomic Absorption Spectrophotometer</strong></td>
<td>23</td>
</tr>
<tr>
<td>Jaiswal A K, Moon D V, Moharana M &amp; Gupta M</td>
<td></td>
</tr>
<tr>
<td><strong>Conference Calender</strong></td>
<td>26</td>
</tr>
<tr>
<td><strong>Testicular Feminization Syndrome – A Case Report</strong></td>
<td>29</td>
</tr>
<tr>
<td>Gupta Saibal, Roychowdhury Uday Basu, Deb Prabir Kr., Roy Debabrata, Chhetri Dibyakar &amp; Moitra Rumi.</td>
<td></td>
</tr>
</tbody>
</table>
Medico legal update is a journal to bring latest knowledge regarding changing medico legal scenario to its readers. The journal caters to specialties of Forensic Medicine, Forensic Science, DNA fingerprinting, Toxicology, Environmental hazards, Sexual Medicine etc. The journal has been assigned international standard serial number (ISSN) 0971-720X. The journal is registered with registrar of newspapers for India vide registration numbers 63757/96 under Press and Registration of Books act, 1867. The journal is also covered by EMBASE (Excerpta Medica Database) from 1997 and by INDEX COPERNICUS, POLAND. Medico-Legal Update is a quarterly reviewed journal.

www.medicolegalupdate.org
Yes! I/We want to subscribe to international class journal of the World Information Syndicate.

Name & Address (In capitals) ________________________________________________________________

Please find enclosed My Demand Draft No ___________________ Dated _______________ for Rs./US$ ________________ in the name of World Informations Syndicate payable at Delhi.

For Year: 2006 (1yr.) ☐ 2006-2007 (2 yrs.) ☐ 2006-2008 (3 yrs.) ☐ Life (10 yrs) ☐

Medico-Legal Update is a journal to bring latest knowledge regarding changing medico legal scenario to its readers. The journal caters to specialties of Forensic Medicine, Forensic Science, D.N.A. fingerprinting, Toxicology, Environmental hazards, Sexual Medicine etc. The journal has been assigned international standard serial number (ISSN) 0971-720X. The journal is registered with registrar of newspapers for India vide registration numbers 63757/96 under Press and Registration of Books act, 1867. The journal is also covered by EMBASE (Excerpta Medica Database) from 1997 and by INDEX COPERNICUS, POLAND.

**SUBSCRIPTION RATES FOR 2006**

<table>
<thead>
<tr>
<th></th>
<th>Institutional</th>
<th>Individual</th>
<th>Student*</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td>Rs.2500</td>
<td>Rs.500</td>
<td>Rs.400</td>
</tr>
<tr>
<td>2 years</td>
<td>Rs.900</td>
<td>Rs.1300</td>
<td>Rs.750</td>
</tr>
<tr>
<td>3 years</td>
<td>Rs.1300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan/Sri Lanka</td>
<td>US$ 100</td>
<td>US$ 40</td>
<td>US$ 105</td>
</tr>
<tr>
<td>Nepal/Bhutan/Bangladesh</td>
<td>Rs.2800</td>
<td>Rs.800</td>
<td>Rs.2200</td>
</tr>
<tr>
<td>Rest of the world</td>
<td>US$ 200</td>
<td>US$ 50</td>
<td>US$ 90</td>
</tr>
<tr>
<td></td>
<td>US$ 130</td>
<td>US$ 40</td>
<td>US$ 70</td>
</tr>
</tbody>
</table>

Life Membership-India (Personal only, Valid for 10 years) : Rs.5000-Disc.50% = Net Rs.2500
Life Membership-Foreign (Personal only, Valid for 10 years) : US$500-Disc.50% = Net US$250

1. To avoid missing issues in postal transit please add Rs.150 for Reg. post charges for one year.
2. *Attach copy of attested ID CARD by Head of the Department.
3. Subscription valid for calendar year January to December only.
4. 10% Discount for Indian subscription agencies & 30% discount to foreign subscription agencies.
5. Discount for foreign Institution/Individual available on request.
6. All issues will be delivered by AIR MAIL at without any additional charges.
7. Cancellations not allowed except for duplicate payment.
8. Pre-Payment required. Demand Draft should be payable to “World Informations Syndicate”.
9. Claims must be made within six months.

SEND REMITTANCE TO:

World Information Syndicate
41/48, DSIDC Complex, oppsite Police station, Mayur Vihar Phase-I
Post Box 9108, Delhi-110 091 (INDIA)
Phone: 91-11-55270068, 48042168 Fax: 91-11-48042168
E-mail: wisindia@vsnl.net Web : wis-india.com
ABSTRACT

Forensic odontology is a specialty in Dentistry, which occupies a primary niche within the total spectrum of methods applied to medico legal identification. Each practitioner has a responsibility to understand the forensic implications associated with the practice of his profession. The purpose of this article is to give an insight into this specialty with an emphasis on recent trends. Conventional and novel techniques are presented.

Key words: Identification, Odontology, Bite marks

INTRODUCTION

Forensic Odontology is the practice related to law. Forensic Odontology can be defined as a branch of dentistry, which deals with the proper handling and examination of dental evidence and with the proper evaluation, and presentation of dental findings in the interest of dentist.

HISTORY

The first treatise on forensic odontology as a subject in its own right was written in 1898 by Dr. Oscar Amoeda, who is generally recognized as the father of Forensic Odontology. In 1770’s Paul Revere, a practicing dentist in US, identified the remains of his friend, Dr. Joseph Warren from the silver bridge made by him. This is thought to be the first case of identification of a person by a dentist.

FIELDS OF ACTIVITY

It can be classified as
1. Civil
2. Criminal
3. Research

Civil: It is concerned with mass disasters like Airline accidents, Earth quakes or train accidents, require identification of the victims in advanced stages of physical destruction, malpractice and different types of fraud.

Criminal: Identification of the persons from their dental remains alone in cases of rape, suicide or homicide through bite mark analysis, rugoscopy, cheloscopy.

Research: Forensic Odontology training for dentists working in criminology or police departments.

Procedures in dental identification

Dental tissue is often preserved indefinitely after death. Complete charting of dentition using FDI (Federation Dentaire International) system or any other nomenclature should be done. Type of dentition (either permanent or deciduous) and surfaces of teeth involved should be evaluated. Bitewing and periapical radiographs are routinely used. Dental impressions like silicones and alginate are used to record bite mark evidence and rugae pattern. Teeth, periodontal tissues and normal anatomical features are assessed in comparative dental identification. Odontograms (symbolic pictorial description of dentition) form a basic outline to compare dental characteristics at the simplest level. The forensic odontologists should have their own kits containing necessary can be

Reprint request : Shamim T
Department of oral pathology & microbiology.
Government Dental College.
Calicut-673008, Kerala
E-Mail : shamu3duad@rediffmail.com
armamentarium (Table 1) for identification.  

**Table 1: Suggested instrument kit for forensic identification**

<table>
<thead>
<tr>
<th>Dental explorers</th>
<th>Photographic mirrors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental mirrors</td>
<td>Periodontal probes</td>
</tr>
<tr>
<td>Biteblocks</td>
<td>Bone mallet</td>
</tr>
<tr>
<td>Tissuescissors</td>
<td>Camera</td>
</tr>
<tr>
<td>Osteotome</td>
<td>Head lamp</td>
</tr>
<tr>
<td>Rubber air / water syringe</td>
<td>Masks</td>
</tr>
<tr>
<td>Cotton swabs</td>
<td>Films</td>
</tr>
<tr>
<td>ABFO No.2 ruler</td>
<td>Stryker saw</td>
</tr>
</tbody>
</table>

**Age estimation**

Age assessment using teeth provided the most reliable guide in the process of identification. Various methods are utilized which includes visual method, radiographic method, histological method, computer assisted method and comparison with ante mortem data.

Eruption sequence, neonatal line formation, incremental lines of Retzius, Schour and Massler chart (to estimate dental age in developing dentition) and Gustafson’s method are important parameters in age estimation.

Gustafson gave six points to determine the age estimation over 21 years. These include attrition, secondary dentin deposition, position of periodontal attachment, cementum deposition, translucency at root and root resorption.

Deposition of secondary dentin can be assessed using periapical radiograph to estimate age. Pulp diameter to crown diameter ratio and pulp / root length, pulp / root width were measured.

The extent of racemization of aspartic acid in coronal dentin of normal permanent teeth can be used to estimate the age of an individual at the time of death. As age advances L aspartic acid will be converted into D aspartic acid.

An interesting method using intensity of fluorescence in dentine and cementum, which shows strong correlation between age, deepening of colour of tooth and increase in intensity of fluorescence. Further the examination of the mandible will help in assessing the age of the individual approximately.

**Sex determination**

Forensic dentists can assist other experts to determine sex of the remains by using teeth. Sex determined from necrotic pulp tissue stained by quinacrine mustard for fluorescent Y chromosome. Fluorescent Y chromosome will be present in the teeth of males. Amelogenin or AMEL is a major protein in the human enamel. The female has two identical AMEL genes whereas the male has two different AMEL genes.

**Race identification**

Race identification is very useful in disasters where different races may be involved in accident. Cephalic index helps to identify the race. Characteristics like shovel shaped incisors and cusp of carabelli are also investigated to determine race.

**Mass disaster identification**

The identification of large numbers of casualties in mass disasters is complex and the identification process is fundamentally the same as that in routine comparative dental identification. Mass disasters can be classified into natural calamities, accident and criminal (terrorist attacks).

DNA profiling is done using genomic DNA and mitochondrial DNA. DNA analysis can reveal the genetic profile of the individual pulp. DNA is analyzed using polymerase chain reaction. Postmortem DNA samples are compared with antemortem sample (stored blood, hair brush, clothing).

The routine application of scientific radiologic identification is effective, timely and relatively easy in the forensic investigation of unknown human remain. Comparison of antemortem and postmortem radiographs is the most accurate and reliable method of identification.

The Swiss identification system was introduced to identify victims of mass disasters. The system consists of an encoded information chip sealed with in the enamel of the tooth with a fire resistant of red composite material.

**Bite mark evidence**

Bite mark is a mark caused by the teeth
either alone or in combination with other mouthparts. One of the most intriguing, complex and sometimes controversial challenges in forensic dentistry is the recognition, recovery and analysis of bite marks. Bite mark evidence can be documented using taking dental impressions, photography and use of overlays. Metric analysis can be done to measure the size of the tooth of the suspect and compared with the bitemark\(^{16}\). American Board of Forensic Odontology (ABFO) has developed a scale (ABFO scale No.2) to compare bite marks\(^{17}\).

Special techniques like scanning electron microscopy coupled with energy dispersive X-ray analysis to reveal the surface topography of bitemarks\(^{16}\). The scientific basis for statistical analysis of the uniqueness of human dentition in bite mark evidence was studied\(^{18}\). The American Board of Forensic Odontology has standardized bite mark analysis. Videotape is used to demonstrate the dynamics of bitemarks\(^{19}\).

**Computer assisted identification**

The computer assisted postmortem identification software (CAPMI) is introduced with the crash of the Arrow Air charter Aircraft in Gander, Newfoundland on December 12, 1985. The main drawback associated with this software is unavailability of original source codes for editing\(^{20}\).

In 1992 Win ID program is introduced with the desire to use the program in a windows format\(^{20}\). Data base preparation, comparison, matching, using of tooth codes are the basic steps in win ID program. Human identification in mass disasters will continue to benefit from advances in technology.

**Cheiloscopy**

Cheiloscopy is the study of lip prints. Lip prints are probably unique to the individual in a manner similar to fingerprints. Lip print can be recorded using lipstick\(^{21}\). The recording of human lip prints is problematic because of their highly deformable nature.

**Rugoscopy**

Rugoscopy is the study of palatal rugae. Rugae are amongst the best protected morphologically individualizing soft tissue structures in the body, which are preserved after death and yet accessible during life\(^{22}\). Dental impressions are taken to record the rugae pattern.

**Superimposition technique**

Photographs may be compared with images of skulls or radiographs may be compared with photographs to reconstruct face\(^{23}\). Orthodontic reconstruction can be done in a murder victim\(^{24}\). It was done using electronic superimposition technique. Photographic superimposition can be established as a method of identification complimentary to finger printing\(^{25}\).

**Results of postmortem identification**

The American Board of Forensic Odontology recommends the following four conclusions in postmortem identification\(^3\):

1. Positive identification: The antemortem and postmortem data match in sufficient detail, with no unexplainable discrepancies, to establish that they are from the same individual.

2. Possible identification: The antemortem and postmortem data have consistent features but, because of the quality of either the post mortems remain or the antemortem evidence, it is not possible to establish identity positively.

3. Insufficient evidence: The available information is insufficient to form the basis for a conclusion.

4. Exclusion: The antemortem and postmortem data are clearly inconsistent.

**CONCLUSION**

Each practitioner has a responsibility to understand the forensic implications associated with the practice of his profession. Computer, soft wares, image capturing devices and ability to transmit information quickly will open new perspective to the Forensic Odontology.

**REFERENCES**


Reliability of Postmortem Lividity as an indicator of Time Since Death in Cold Stored Bodies
Vrinda J Bhat*, Vikram Palimar*, Pradeep Kumar G***
* Assistant Professor, *** Professor
Department of Forensic Medicine, Kasturba Medical College, MAHE, Manipal – 5756119

ABSTRACT
Determining the time since death is one of the most important aspects of postmortem examination. It is necessary for the forensic expert to estimate the time since death with high degree of accuracy, as subsequent investigation will be based on this estimate. It is evaluated with the help of the evidence, either on or around the body. Cooling of the body, postmortem lividity, rigor mortis and putrefactive changes are certain criteria by which time since death can be estimated from the body.

A study was conducted in the Department of Forensic Medicine, Kasturba Medical College, Manipal to determine the reliability of time since death with the help of postmortem lividity in cold stored bodies. 633 medico-legal autopsies conducted on the hospital deaths in the period of 2001-2004 were included in the study, of which postmortem lividity was appreciated only in 417 cases. The exact time of death and the duration of preservation in cold chamber were known in all the cases. The effect of cold temperature on the time of appearance and fixation of postmortem lividity was studied and correlated with the literature.

Key Words: Cooling, PM lividity, cold stored bodies

INTRODUCTION
The role of forensic medical examiner is often to interpret the last mute message of a violent death. One of the first things to be determined is the time since death or Postmortem interval. The longer between the time since death and the autopsy, the less exact the estimation of Postmortem interval will become. Post mortem lividity is one of the factors, which helps the doctor in estimating the time since death.

Lividity results from gravitational pooling of blood in the veins and capillary beds on the dependent parts of the body following stoppage of circulation. It starts appearing as mottled patches by 1-3 hours after death and the process is complete by 4-6 hours post mortem. It is fixed in about 6-8 hours.

All the afore-mentioned observations apply to the bodies, which are stored in unaltered environmental conditions.

In the present study the authors have attempted to find whether there occurs any modification of the various parameters of Postmortem lividity when the bodies are stored in cold chamber.

Materials And Methods
633 medicolegal autopsies conducted in the Department of Forensic Medicine, KMC, Manipal over a period of 4 years (January 2001 to December 2004) were taken as pilot study.

The exclusion criteria for the study group were:
1. Any evidence of external injury over the dependent parts for e.g. burns
2. Bodies not preserved in cold chamber
3. Brought dead cases where the exact time of death is not known
Hence, a total number of 417 cases were studied.

Methods
The method of assessing the state of PM lividity was as follows:
1. If there was no evidence of any discolouration, it was noted as: Lividity not appeared
2. If the area blanched on pressure it was noted as: Lividity not fixed
3. If there was no change in the colour of Lividity
on application of pressure it was noted as: Lividity fixed

*Force applied with the thumb over the livid area for a period of 30 seconds.

**Observations and Results:**

Of the 417 medicolegal autopsies, the PM lividity had not appeared in 32 cases, whereas, the lividity was not fixed in 143 cases. Two hundred and forty two (242) cases showed fixation of PM lividity. The PM interval was divided into 5 categories. The duration of their fixation, as per the categories, is as shown in Table 1. Maximum number of cases (122- 29.2%) were stored in the cold chamber within 2 hrs after death. The appearance, non-fixation, and fixation of the PM lividity in relation to the duration in the cold chamber are as depicted in Table 2.

**DISCUSSION**

PM lividity is usually evident with in ½ - 2 hrs after death. In individuals, dying of terminal cardiac failure, it may actually appear antemortem. Lividity develops gradually, usually reaching its maximum coloration at 8-12 hrs. When there is no evidence of blanching of the livid area on pressure, it is said to be fixed. It is a well known fact that if the body is moved or turned prior to this the PM lividity shifts. In our study we have seen that in only 4.1% (17 cases) of cases PM lividity was not fixed even upto 12-18 hrs. Fixation of PM lividity can occur before 8-12 hrs if decomposition is accelerated but at cold temperatures it may be delayed upto 24-36 hrs.

In a study conducted on estimation of PM interval by lividity, over 50% of cases showed fixation of PM lividity after 12-24 hrs. In the same study a significant number of cases showed non-fixation of PM lividity upto 3 days.

Fechner, Koops and Henssge conducted a study for the effect of different cold temperatures on the reaction of PM lividity and observed that the reaction was dependent on cold temperature but there was no linear relationship between fixation and time of death. The phenomenon of appearance of PM lividity showed variation in fixation according to different storage temperatures. Our findings co-related with Di Maio & Di Maio and Fechner's study. Thus the statement that PM lividity becomes fixed at 8-12 hrs is just a vague generalization, when the bodies are cold stored. Then, its variability is such that it is not useful for any estimation of time since death. To conclude, postmortem lividity as a parameter in determining postmortem interval is not reliable in circumstance where the bodies are exposed to cold temperatures.

**References**


**Table 1: Distribution of the cases based on non-appearance, appearance and fixation of PM Lividity in relation to the time since death**

<table>
<thead>
<tr>
<th>Time Since Death</th>
<th>PM Lividity Not appeared</th>
<th>PM Lividity Appeared not Fixed</th>
<th>PM Lividity Appeared &amp; Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 6 hours</td>
<td>09</td>
<td>34</td>
<td>19</td>
</tr>
<tr>
<td>6 - 12 hours</td>
<td>18</td>
<td>48</td>
<td>63</td>
</tr>
<tr>
<td>12 - 18 hours</td>
<td>04</td>
<td>44</td>
<td>75</td>
</tr>
<tr>
<td>18 - 24 hours</td>
<td>01</td>
<td>17</td>
<td>70</td>
</tr>
<tr>
<td>&gt; 24 hours</td>
<td>00</td>
<td>00</td>
<td>15</td>
</tr>
</tbody>
</table>
Table 2: Distribution of the cases based on non-appearance, appearance and fixation of PM Lividity in relation to the duration of cold storage of the bodies.

<table>
<thead>
<tr>
<th>Time in Cold Chamber</th>
<th>PM Lividity Not appeared</th>
<th>PM Lividity Appeared not Fixed</th>
<th>PM Lividity Appeared &amp; Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3 hours</td>
<td>04</td>
<td>16</td>
<td>05</td>
</tr>
<tr>
<td>3 - 6 hours</td>
<td>05</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>6 - 9 hours</td>
<td>13</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>9 - 12 hours</td>
<td>03</td>
<td>24</td>
<td>38</td>
</tr>
<tr>
<td>12 - 15 hours</td>
<td>03</td>
<td>14</td>
<td>40</td>
</tr>
<tr>
<td>15 - 18 hours</td>
<td>02</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>18 - 21 hours</td>
<td>01</td>
<td>08</td>
<td>38</td>
</tr>
<tr>
<td>21 - 24 hours</td>
<td>01</td>
<td>09</td>
<td>32</td>
</tr>
<tr>
<td>&gt; 24 hours</td>
<td>00</td>
<td>00</td>
<td>15</td>
</tr>
</tbody>
</table>


STATEMENT ABOUT OWNERSHIP AND OTHER PARTICULARS ABOUT “MEDICO-LEGAL UPDATE” (See Rule 8)

1. Place of Publication: Delhi
2. Periodicity of Publication: Quarterly
3. Printer’s Name: Magpie Corporation
   Nationality: Indian
   Address: 1743, IInd Floor Kotlamubarak Pur, New Delhi-110003
4. Publisher’s Name: World Informations Syndicate
   Nationality: Indian
   Address: 3/258-259, Trilok Puri, Delhi - 110 091
5. Editor’s Name: Dr. R.K. Sharma (Editor-in-Chief)
   Nationality: Indian
   Address: Dept. of Forensic Medicine & Toxicology, All India Institute of Medical Sciences, New Delhi - 110 029
6. Name & Address of Individuals who own the newspaper and particulars of shareholders holding more than one percent of the total capital:
   Dr. R.K. Sharma
   Dept. of Forensic Medicine & Toxicology, All India Institute of Medical Sciences, New Delhi - 110 029

I Dr. R.K. Sharma, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-
(Dr. R.K. Sharma)
INSTRUCTION TO AUTHORS

Medico-Legal Update invites articles, case reports, newspaper clippings, report of medico-legal activities to update the knowledge of readers in scientific disciplines such as Forensic Medicine, Forensic Sciences, Environmental Hazards, Toxicology, etc.

The following guidelines should be noted:

1. Please send two hard copies complete in all respect along with one copy in floppy disk/CD-ROM. The article can also be sent through e-mail as attachment.

2. The article should be accompanied by a declaration from all authors that it is an original work and has not been sent to any other journal for publication.

3. References should be in Vancouver style.

4. As a policy matter, journal encourages articles regarding new concepts and new information.

All articles should be sent to:

Dr. R.K. Sharma
( Editor-in-Chief)
Additional Professor
Dept of Forensic Medicine & Toxicology
Old Operation Theatre Building, Room No.107
ALL INDIA INSTITUTE OF MEDICAL SCIENCES
Ansari Nagar, New Delhi - 110 029 (India)
Phone: 91-11-26594292 (O), 91-11-26493988 (R), Mob: 9891098542
E-mail : rksharma1@gmail.com
www.medicolegalupdate.org
ABSTRACT
The incidence of road traffic accidents is increasing all over the world. The factors include man, the vehicle, and the road. Alcohol and drugs of intoxication account for a large proportion of RTA worldwide. In the developing world, roads are poorly built and are poorly maintained. As a result, the roads have become death traps. Vehicles are poorly maintained due to poverty, ignorance and corruption among enforcement agents. All these factors are controllable by government policies. This article advocates preventive measures.

INTRODUCTION
Governments in the developing world owe their inhabitants the duty to keep roads safe and ensure that only road-worthy vehicles ply the roads. The UN, WHO and its agencies need to be involved to stem the rising tide of carnage from RTA in the developing world. Especially in Nepal.

Public insurance is not mandatory and about only 2% of the population is insured. The reason for not having insurance is poverty, illiteracy, ignorance and lack of planning by the government. Recently insurance of vehicles has been mandatory but unfortunately still many vehicles are not insured.

Nepal is a land-locked country nestled in the midst of the world’s highest mountains, strategically situated in between the vast plains of the Indian subcontinent to the south, east and west and the high Tibetan Plateau of China to the north. The total land area is 147,181 square kilometers. The population is estimated to at about 22 million; about 90% are Hindus, and more than 90% live in rural areas.

GEOGRAPHY
Topographically, the country can be divided into three well-defined physical geographical belts running from east to west. The terrain (plain land) contains 23% of the land area and 45% of the population; it is 200-1000 feet above sea level. The hills contain 42% of the land area and 47% of the population; this area is 1000-16,000 feet above sea level. The mountain covering 35% of the land area and the remaining 8% of the population lies above 16,000 feet.

Administratively, the country is divided into five development regions and 75 districts. The economy of Nepal depends heavily on agriculture, which provides employments of more than 91% of the economically active population and account for about 60% of the export earnings. Tourism plays an active part in foreign exchange earnings. Approximately 25% of tourist came from India, 38% from Western Europe and 37% from the rest of the world. Many Nepalese also have relatives in adjacent states of India and both sides move freely across the border.

The total road in Nepal is 13223 km where national highway is 2905 km, feeder road measure 1656 km, feed road minor 179 km, district road 6615 km and urban road 1868 km. Out of the total road black topped road is 4073 km, graveled road 3476 km and earthen is 5674 km. Most of the road does not have proper traffic signals and poor speed breakers and humps further contribute to the accidents. In many hilly and mountainous areas to the north there hardly any motor-able roads and people has to walk miles through the narrow passage for days together where hardly two persons can cross each other. Some head quarter does not have road and is connected only with air-flight.
INSURANCE
In Nepal public insurance is not mandatory and hardly 2% of the population is insured. The reason is poverty, illiteracy and ignorance of the people and lack of proper planning and management by the government because of rivalry between the political party, mid term multiple election and economic failure leading to instability of the government. Similarly not all the vehicle is insured until recently insurance has become mandatory for all four-wheeler-vehicle by the law. Most of the two-wheeler and four wheeler vehicle still remains to be insured.

MORTALITY AND MORBIDITY
Beside Ethiopia, Nigeria, Ghana and Nepal has dubious distinction of having one of the highest accident rate in the world. It is estimated that about 1400-1500 person die and 4000 get injured annually where approximately 4000 vehicle is involved. Beside that thousand of animals also die and many get injured because animals like cow, buffalo, horses, donkeys, bull cart, oxen cart, goat, pig, dog, cat and other domestic animals also uses the same road and many times the vehicle run out of control injure and kill the people while trying to save the animals. Most of the motorcyclist encounter such problem and meet an accident.

Disproportionately high percentages of these annual deaths, injuries and permanent disabilities are borne by the citizens of developing nation. Statistics show that, while the people of developing countries own only 32% of the world’s vehicles, they account for 75% of the annual accident fatalities.

PIT FALLS
Commencing from the 1970s, road safety improvements in North America, Europe, Japan, Australia and New Zealand resulted in significant reduction in the rates of motor vehicle fatalities. Control of drunk driving, the mandatory use of child-restraint devices and seat belts and improvements in passive protection, such as air bags, have further reduced the number of deaths and the severity of injury. The situation is quite different, though, in the developing world where a growing number of accidents on the roads have caused the problem to reach epidemic proportions. In the highly motorized countries, the occupants of cars are the primary victims of traffic accidents.

In the developing, newly motorizing countries, the majority of deaths and injuries are sustained by vulnerable road users such as pedestrians, bicyclists, motorcycle and scooter riders, and passengers on public transportation. They travel together on the same roads with buses, trucks and cars, in a chaotic traffic stream. Mismatched collisions between the unprotected humans and the heavy vehicles cause frequent death and serious injury, even at low speeds. Head on collision between the vehicle is not uncommon because the moves both the way on the same road in Nepal and many other countries in Asia. More over significant proportion of heavy and lightweight vehicle is 30 to 40 years old and is still increasing in the road ignoring air pollution, sound pollution as well as mechanical failure, which frequently leads to catastrophic.

Unlike the developed countries where cars are the predominant mode of private transportation, in the newly motorizing countries, more affordable motorcycles and scooters are being purchased and are joining unregulated traffic stream in large numbers. The resulting explosive 16-18% vehicle growth rate in many Asian countries will lead to doubling of the fleet in five years and a trebling in eight years, causing even more severe problems. Not separating the various road users, sparse traffic safety laws, in adequate police enforcement, absence pre-hospital emergency care, and limited resources for acute hospital and rehabilitative care are additive factors explaining the frequency of accidents and there devastating consequences.

OBJECTIVE
In established democracies, victims of road traffic accidents have access to redress when factors responsible for an accident are identified. Agencies that own uncovered manholes or drainage facilities are held accountable for mishaps that are traceable to their facility. With rapidly advancing frontiers of global democratization, trauma is expected to pose legal problems on responsibility and liability. Compensation claims are expected to rise with new interpretations and forensic analyses. Furthermore clinicians
attending to RTA victims are exposed to litigation for alleged negligence. From the foregoing, liability for Road Traffic Accidents lies between man and government. On balance, developing world governments, being responsible for ensuring that vehicles that ply public roads meet certain minimum standards and being solely responsible for the construction and upkeep of roads, must accept the greater responsibility for the carnage on the roads. In the prevailing winds of global democracy, in addition to the plea of A sogwa for assistance, the United Nations Organization and its agencies such as World Health Organization, Organization for Economic Cooperation and Development (OECD) and the World Bank, should set up a body to monitor the roles of governments in road traffic accidents, in a bid to stem the rising tide of carnage on roads in developing countries.

CONCLUSION
The motto is to present to the community and the government of the developing country including Nepal to institute proper road traffic safety measures and promulgate appropriate law and insurance policies so that that the country and society would get an opportunity to lessen the human suffering and decrease the negative economic influence of road traffic accidents in future.

REFERENCES:
46. Prahari Prashasan sanga sambandhit ain niyam, chautari prakashan, kathmandu, 2053 bs, Sawari tatha yatayat byawastha Ain, 2049 bs, pp 267.
Sociodemographic Profile of Substance Abusers Attending A De-Addiction Centre in Ghaziabad

*Singh Brijender, **Singh Vijender, ***Vij Aarti

*Senior Resident Administrator, Deptt. of Hospital Administration, AIIMS, New Delhi.

**Senior Resident, Deptt of Psychiatry, AIIMS, New Delhi. ***Associate Professor, Deptt of Hospital Administration, AIIMS, New Delhi.

ABSTRACT

The widespread abuse of drugs and alcohol has become a human tragedy. The abuse of alcohol and other illicit drugs leads to many problems like decline in productivity, increase in crime rate, accidents, increased expenditure in rehabilitation and even death. The situation is likely to worsen and even may go out of hand if adequate measures are not taken to clearly identify the vulnerable group and provide them proper help. The present study has been done to explore the socio-demographic correlates like age, gender, educational status, occupation, age of initiation of substance abuse, the type of substance used and positive family history in patients doing substance abuse. For this study patients coming to NDDTC AIIMS Ghaziabad were included.

Key words: Socio-demography, Substance abuse, De-addiction Centre, Age, Drug addiction.

INTRODUCTION

Drug dependence is a complex and multidimensional problem. All the dependence producing substances have hedonic effect. This pleasurable effect becomes so insistent that it dominates the lifestyle of the individual and damages his or her quality of life or the habit itself causes actual harm to the individual or the community. So the problem is not merely that of an individual, a drug or a community, but the interaction between the triad

MATERIALS AND METHODS

All the substance abusers attending the NDDTC, AIIMS, Ghaziabad from July 2003 to October 2003 were taken up for the study. This de-addiction centre is situated in Ghaziabad and is part of AIIMS N. Delhi. The centre provides services like detoxification and maintenance programmes. A total of 725 substance abusers were studied. A pre-tested and pre-designed proforma was used. All those who participated in the study were briefed about the study and their explicit consent was taken before the participating in the study. The proforma included details regarding age, gender, education, occupation, age of initiation for the substance abuse, type of substance used and family history of substance use. All the enrolled subjects

Reprint request: Dr. Brijender Singh
Senior Resident Administrator, Deptt. of Hospital Administration, AIIMS, New Delhi.
were personally interviewed. Two or more than two visits were carried out to build rapport and build confidence amongst the substance abusers. This helped us in getting deeper information regarding their habits.

**RESULTS**
A total of 725 drug abusers were interviewed. Majority of the drugs abusers interviewed were more than 30 years of age. Only 7.17% were adolescents (Table no 1).

**Table 1:** Distribution of abusers as per age

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Frequency (n=725) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>50</td>
<td>2</td>
<td>52</td>
<td>7.17%</td>
</tr>
<tr>
<td>21-25</td>
<td>97</td>
<td>4</td>
<td>101</td>
<td>13.93%</td>
</tr>
<tr>
<td>26-30</td>
<td>139</td>
<td>5</td>
<td>144</td>
<td>19.86%</td>
</tr>
<tr>
<td>&gt;30 years</td>
<td>413</td>
<td>15</td>
<td>428</td>
<td>59.03%</td>
</tr>
</tbody>
</table>

Most of the drug abusers were educated up to primary and secondary level (40.13 and 41.10% respectively) (Table no 2).

**Table 2:** Distribution of abusers as per education level

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency (n=725) No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>82 (11.31%)</td>
</tr>
<tr>
<td>Primary</td>
<td>291 (40.13%)</td>
</tr>
<tr>
<td>Higher secondary</td>
<td>298 (41.10%)</td>
</tr>
<tr>
<td>Graduation</td>
<td>44 (6.06%)</td>
</tr>
<tr>
<td>Post graduation</td>
<td>10 (1.37%)</td>
</tr>
</tbody>
</table>

Most of them were from Delhi i.e. 59.96% and from Uttar parades i.e. 38.34% (Table no.3).

41.37% of the drug abusers were drivers, 28.96% were laborers and 11.03 were rickshaw puller (Table no. 4).

**Table 3:** Geographical distribution of the drug abusers

<table>
<thead>
<tr>
<th>Domicile/Residence</th>
<th>Frequency (n=725) No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhi</td>
<td>413 (59.96%)</td>
</tr>
<tr>
<td>Haryana</td>
<td>24 (3.31%)</td>
</tr>
<tr>
<td>Punjab</td>
<td>7 (0.96%)</td>
</tr>
<tr>
<td>UP</td>
<td>278 (38.34%)</td>
</tr>
<tr>
<td>Other states</td>
<td>3 (0.41%)</td>
</tr>
</tbody>
</table>

44.13% of the abusers had started substance abuse at the age of 16 to 20 years. Opium and alcohol were the most commonly abused drugs (66.75% and 8.68%) respectively. 180 (24.8%) of them gave history of drug addiction in family members while as many as 75.17% were the first reported abusers in their family. (Table no. 5).

Table 5: Age of initiation, type of substance used and positive family history of the substance abusers

<table>
<thead>
<tr>
<th>Age of initiation(yrs)</th>
<th>Frequency (n=725) No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-10</td>
<td>10 (1.37)</td>
</tr>
<tr>
<td>11-15</td>
<td>42 (5.79)</td>
</tr>
<tr>
<td>16-20</td>
<td>320 (44.13)</td>
</tr>
<tr>
<td>21-25</td>
<td>190 (26.20)</td>
</tr>
<tr>
<td>26-30</td>
<td>102 (14.06)</td>
</tr>
<tr>
<td>31-35</td>
<td>39 (5.37)</td>
</tr>
<tr>
<td>36+</td>
<td>22 (3.03)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of substance</th>
<th>Frequency (n=725) No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opium</td>
<td>484 (66.75)</td>
</tr>
<tr>
<td>Cannabis</td>
<td>5 (0.68)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>63 (8.68)</td>
</tr>
<tr>
<td>MDD</td>
<td>47 (6.48)</td>
</tr>
<tr>
<td>Others</td>
<td>126 (17.37)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive family history</th>
<th>Frequency (n=725) No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>180 (24.82)</td>
</tr>
<tr>
<td>No</td>
<td>545 (75.17)</td>
</tr>
</tbody>
</table>

Discussion

Drug abuse is a very complex and multidimensional problem. Urbanization, modernization and industrialization have lots of adverse effects on mental health.

Some people are not able to cope up with the competition and stresses of this world. Worldwide the age of starting the drinking of alcohol is declining and young people have started taking drugs. In this present study, maximum no. of drug abusers started taking drugs at the age of 16-20 years. Similar study conducted by B. Sridhar et al amongst medical students revealed that students who tried the drug for the first time belonged to the age group of 19 to 22 years.

Most of the patients coming to NDDTC, are from Delhi. Majority of the drug abusers were drivers who are most of the times away from home and the laborers.

Most commonly abused drugs were the alcohol and opium. An abuser of substance in house has a tremendous impact. It has been confirmed by many studies that environment created by the parents predisposes the child to drug abuse like problems in their later years.

In case of smoking it is noted that if child's older sibling and both parents smoke the child is four times likely to smoke as one with no smoking history in the family. In this study 24.82% of the drug abusers had family history. So we can say that positive family history to be an important predisposing factor.

References

9) E. Masihi et al. A summary report of an assessment of drug abuse, drug users and prevention services in the city of Ahmedabad, Ministry of Social Welfare; Govt. of India.
MEDICO-LEGAL UPDATE
Library Recommendation Form

If you would like to recommend this journal to your library, simply complete the form below and return it to us. Please type or print the information clearly. We will forward a sample copy to your library, along with this recommendation card.

Please send a sample to:
Name of Librarian

Library

Address of Library

________________________________________________________________________

Recommended by:
Your Name/Title

Department

Address

Dear Librarian:
I would like to recommend that the library subscribe to the Medico-Legal Update. I believe the major future uses of the journal for our library would be:

1. As useful clinical information for members of my medico legal specialty.
2. As an excellent research aid.
3. As an invaluable student resource.
4. I have a personal subscription and understand and appreciate the value an institutional subscription would mean to our staff.
5. Other

Should the journal you’re reading right now be a part of your hospital or institution’s library? To have a free sample sent to your librarian, simply fill out and mail this today!

Stock Manager: Medico-Legal Update
41/48 DSIDC Pocket-II, Mayur Vihar Phase-I, P.O. Box No. 9108, Opp. Police Station, Delhi-110 091 (India)
Tel: 91-11-55270068, Fax: 91-11-22790315
E-mail: wisindia@vsnl.net, Website: www.wis-india.com www.medicolegalupdate.org
ABSTRACT
This is a retrospective descriptive study on 105 trauma related deaths. Interviews of the family members were conducted individually before carrying out the autopsies at Umtata General Hospital (UGH). The cause of death was recorded along with the age, and personal habits such as alcohol, and tobacco smoking. This is the referral hospital for a surrounding population of about 400,000. The purpose of this study is to estimate the prevalence of alcohol among victims of traumatic deaths in the Transkei region.

One hundred and five trauma victims were studied. Motor vehicle accidents caused deaths of 34(32%), fatal gunshot injuries 25(24%), stab injuries 18(17%), blunt trauma 10(9%), and miscellaneous 19(18%). Majority of the victims, 71(68%) were under 40 years of age. In 52(49.5%) there was a history of alcohol consumption. Eighteen were between 21 and 30 years, 11 were between 31 to 40 years. Half were smokers. Twenty nine percent were labourers with low level of education. The alcohol related traumatic deaths are high in the Transkei region. There is a need to control alcohol.

INTRODUCTION
Alcohol is a socially accepted drink for partying, entertainment, bonding, and confidence boosting. Often alcohol abuse leads to drunkenness and violence. A strategy to reduce the crime and violence is to reduce the availability of alcohol (WHO, 2002). World Health Organization (WHO) estimates that there are about 2 billion people who consuming alcoholic beverages and 76.3 million with diagnosed alcohol use disorders.

Every day around the world, almost 16 000 people die from injuries. For every person that dies, several thousands more are injured, many of them with permanent sequelae of injuries (WHO, 1999). One in four deaths of European men in the group aged 15-29 years is related to alcohol. In parts of Eastern Europe, the figure is as high as one in three (Press Release, 2001).

South Africans consume well over 6 billion litres of alcohol beverages per year. The prevalence of misuse is likely to be as much as 30% among certain groups. Binge drinking among young people, especially males, is high. High levels of alcohol misuse has been reported among residents of disadvantaged communities. Adult per capita consumption of absolute alcohol in South Africa is between 9 and 10 liters per year which places the country among the higher alcohol consumption nations (Parry, 1998). Alcohol abuse is estimated to cost South Africa in excess of R9 billion per year. Excise duties on alcoholic beverages were approximately R4.2 billion in 2003/4. The social costs of alcohol-related trauma and accidents in South Africa far exceed than the revenue collected. Intoxication is a major factor behind a high percentage of motor vehicle-related injuries and incidents of interpersonal violence (Sebastian, 2004). Alcohol remains the substance most commonly abused by injured patients in Cape Town (Peden et al, 2000).

The misuse and abuse of alcohol is widespread in South African society and likely to have a large impact on the economy. A major burden is borne by the hospital care system; in particular the cost of alcohol-related trauma (Parry et al, 1996). There was an association between intoxication and both violent crime and suicide attempts. One hundred and four subjects (39%) had criminal convictions, the majority of which were committed while the subjects were intoxicated. The commonest alcohol-related crimes were driving related (17%) and
crimes of violence (15%). Male gender and younger age at initiation of drinking, and earlier onset of problem drinking was significantly associated with criminal behavior (Allan et al, 2001). Alcohol and cannabis are commonly misused by trauma patients in Johannesburg; the degree of misuse of other drugs appears to be low. Intoxication is a significant risk factor for violence and accidents and the resultant injuries are massive burden on our society. Doctors have responsibility to highlight the association between substance misuse and trauma and should also attempt to persuade individual trauma patients to reduce future alcohol consumption (Bowley et al, 2004).

In a recent study from Cape Town, 60% of trauma patients showed positivity to alcohol levels on breath analysis, 28% could be classified as problem drinkers, or possible chronic alcoholics, on the basis of questionnaires and, on urine analysis, 40% of patients were found to have used at least one illicit drug in the recent past (Peden et al, 2000).

In South Africa, 76% of all deaths after interpersonal violence have been shown to be alcohol related (Spuy, 2000). Alcohol and other forms of substance abuse are also major associated factors in the high trauma rates on South Africa’s roads. Seven percent of drivers with illegal blood alcohol levels account for nearly 30% of non-fatal and 47% of fatal driver deaths (Spuy, 2000), but injury to drunken pedestrians shows even greater alcohol relatedness, as pedestrian accidents account for 72% of adult traffic deaths (Spuy, 1996). There is hardly any statistics available on alcohol related traumatic deaths in Transkei area. There is a very high rate of (162 per 100,000 population) violent and/or traumatic deaths in Transkei (Meel, 2004). The purpose of this study was to estimate the prevalence of alcohol related traumatic deaths.

**METHOD**

This is a descriptive study covering a period of two years (1997-98) carried out at Umtata General Hospital (UGH) mortuary. The latter is located in the hospital premises, the teaching hospital of the University of Transkei Medical School in Eastern Cape Province of South Africa. The hospital mortuary provides services to Umtata and Nqeleni magisterial areas serving a population of about 400,000 and carries out about a thousand autopsies per year. This is the only medico legal center in this area.

The information of 105 victims of trauma deaths was gathered by directly interviewing relatives who were present at autopsy. Information was collected on Tuesdays and Thursdays only. The demographic data, cause of death, and their personal habits such as smoking and alcohol consumption were recorded. The data were compiled and analyzed by Epi-Info 6.4 computer program. The results have been presented in Tables and Figures.

**RESULTS**

Out of 105 victims 71(68%) were less than 40 years of age (Table 1 & Figure 2). The causes of deaths of all were: Motor Vehicle Accidents (MVA) 32%, gunshot 24%, stab injury 17%, blunt trauma 9%, and miscellaneous 18%. (Figure 1)

A history of alcohol consumption was found in 49.5%. Eighteen of the alcoholic group (17.1%) were between 21 and 30 years of age and 11(10.5%) were between 31 and 40 years (Figure 3). Most 28(29.1%) were laborers (Figure 4 & Table 2). Fifty four (51.4%) were smokers.

**DISCUSSION**

Trauma is the leading cause of death in the Transkei region of South Africa, one of the least developed parts of the country, and violence contributes substantially to these traumatic deaths. The unusually high level of crime in this area is a reflection of massive unemployment poverty, and a low level of education. The commonest cause of death in this study is MVA (32%), firearm injuries (24%), stab wounds (24%), and blunt trauma (9%) (Figure 1). The observed rate of violent and/or traumatic deaths in Transkei region of South Africa from 1993 to 1999 is 2.4 times higher than in Cape Town, and that of homicidal deaths is 1.3 times higher Meel, 2004).

Alcohol misuse is one of the most significant public health problems in South Africa today (SIMRAC, 2003). The family members who were interviewed confirmed that about half the victims were under the influence of alcohol at the time of the assault (Table 1). Alcohol and traumatic deaths is a major concern in many studies. A study carried out by Peden in 2000
in South Africa, showed that alcohol remains the most commonly abused substance among trauma patients (Peden et al, 2000). Alcohol-related crime is increasingly being recognized as a problem in cities and towns with popular entertainment districts (Richardson et al, 2003). Alcohol has found to play a major role in commission of murder in Soweto, in that in 48% of the cases either both or one of the parties was under the influence of alcohol (Snyman, 1992). Another South African study showed that the majority of traumatic deaths were associated with positive alcohol levels in the victims (Goosen, 2001). Unfortunately, from 1993 the level of per capita adult absolute alcohol consumption appears to be rising, after a decrease in 1990 and 1991 (Parry, 1998).

Alcohol misuse also impacts on the criminal justice system, with evidence of association between drinking at risky levels, committing crime, or being a victim of crime (Myers et al, 2003). The role of alcohol misuse has always been inextricably entwined with crime; the nature of the relationship is not a simplistic one. To assume that the relationship is causal is to oversimplify the issue, as other factors associated with the murder will be negated. Alcohol is but one, albeit an important, link in the over all chain of causative factors (Walfish et al, 1989).

There are only very few studies carried out in South Africa, a country where the incidence rates of crime and alcohol abuse are unacceptably high. There was an association between crime and suicide (Allan et al, 2001). The victims were predominantly male (4:1), and under 40 years (68%) in this study (Figure 2). The findings were similar to those in the National Injury Mortality Survey System report (Butchart, 2000). The victims of traumatic death in this study were typically young male, a finding in line with what has been reported from most studies (WHO, 2002).

There were 28 in the 21 to 30 year age group of whom 18 were alcoholic (Figure 3). Thus alcohol could be contributory to violence by young people. Youth violence deeply harms not only its victims, but also their families, friends and communities. Its effects are seen not only in death, illness and disability, but also in terms of the quality of life (WHO, 2002). Twenty four of the victims were under 20 years of age. Of them 5 were supposed to have consumed alcohol and were in the 11 to 20 year age group (Figure 3). Binge drinking, and especially male binge drinking, among 18 to 24 years olds is statistically related to offending behavior. In the 12 months prior to interview, 39% of binge drinkers admitted to committing an offence and 60% admitted criminal behavior during or after drinking alcohol (Richardson et al, 2003). In a survey of 1378 African young persons aged 10-21 years from urban and rural areas of South Africa, Rocha Silva et al (1996) found that 11.3% of urban and 19.6% of rural males consumed on an average almost five, 340ml beers per day (Rocha-Silva et al, 1996). Levels of binge drinking are clearly higher in the drop-out males than school going, and it is high in Xhosa speaking (Parry, 1998).

Alcohol is associated with violent crime at a greater than chance level and at a significantly higher level than it is associated with nonviolent crime. Heavy drinking and a verbal argument usually precede the violent act and the victim as likely as the offender, to initiate an altercation. When intoxicated a simple altercation may turn up violent (Murdoch et al, 1990). The link between alcohol and violence is also culturally dependent, and exists only in settings where the collective expectation is that drinking causes or excuses certain behaviors (Gelles, 1993). In South Africa, for example, men speak of using alcohol in a premeditated way to gain the courage to give their partners the beatings they feel are socially expected of them (Abrahams et al, 1999). There were 28 labourers among the victims, with a low level of education (Table 2 & Figure 4). Alcohol consumption is prevalent in all class of societies. Numerous studies have indicated that consumption of alcohol in small to moderate amounts every week can reduce ischemic strokes (Rose, 1999). The cost-benefit on health by consumption of alcohol is not assessed, and probably it will cause more harm than good. Public should also be aware of the long term consequences. Many studies have shown that alcohol abuse is a leading cause of morbidity and mortality throughout the world, causing acute and chronic liver disease. One in 10 patients with liver cirrhosis results from alcohol abuse (Worman, 2004). There were 54 victims who were confirmed smokers. Generally, two commonly used legal...
drugs, alcohol and tobacco smoke, are more frequently consumed than all other illegal drugs combined, with disastrous consequences of health (Mee, 2002). In middle age group, economically active men, the probability of premature deaths is high in sub-Saharan Africa. Among men, tobacco is responsible for one-third of all male deaths (Csepe, 2002).

South Africa has been carrying a triple burden of poverty, chronic diseases, and injuries, and now a fourth has been added on by way of the HIV/AIDS pandemic (Mee, 2004). These conditions are interrelated. Alcohol is an underlying factor in this interrelationship, and to break this cycle the consumption of alcohol need to be reduced. The strategy recommended by WHO (2002) to reduce the crime and violence, is to reduce the availability of alcohol. This was compared in two experimental and four control towns, and it was observed that there was a decrease in offences in the experimental towns (WHO, 2002).

This study is limited in scope as the number of cases is small. However, it highlights the depth of the problem of alcoholism in relation to traumatic deaths in Transkei.

ACKNOWLEDGEMENT
The author wishes to thank Dr. George Rupesinghe, Senior Specialist, Family Medicine, Umtata General Hospital, for the assistance given during the preparation of this manuscript.

REFERENCES


Cancer Patients can freeze their eggs as Insurance
D N Bhardwaj, Additional Professor, Forensic Medicine, AIIMS, New Delhi

Abstract: Many cancer patients face the prospect of never having children as their treatment can leave them infertile. Previously babies born using frozen eggs have been encountered only in healthy women. However, in Florida (U.S.A.) Rutansky suffering from Hodgkin’s Lymphoma since 1997 was advised not to carry pregnancy. She got her eggs frozen and through surrogacy, got own biological child through IVF.

Key words: cancer, pregnancy, surrogate, fertility.

Introduction: Ordinarily every woman will be willing to have her own children. However, 10% of the couples are reported to be suffering from infertility and Assisted Reproduction through IVF technique is the treatment of choice of these couples. Many times pregnancy may be against the health of mother. Cancer is such a situation where it may be against her own health. Adoption becomes the only alternative to have heirs. However nowadays due to advancement in IVF technology one can have frozen eggs or sperms which may be used for future pregnancy to have own biological children. The reported case is also of same nature.

Discussion: Tens of thousands of patients are suffering from various types of malignancy. Many are issueless because the treatment could lead to infertility. However, IVF technology is fast growing and many new advancement have came up. Nowadays, the woman can freeze her eggs in bank as short of insurance to use it later if needed. Jacob Evan Rutansky is the baby born to surrogate mother using frozen eggs. Biological mother was getting treatment for Hodgkin’s Lymphoma through chemotherapy & radiotherapy and was advised against pregnancy. However using frozen eggs of lady submitted seven years ago, the child was born through surrogacy. This pioneering treatment was carried out at the Florida Institute for Reproductive Medicine in USA.

Conclusion: This is a good news for cancer patients who want to have their own children through IVF.

Reference: Times News Report

PNDT Act proves to be ineffective in India

Abstract: Despite eleven Year old legal ban on prenatal diagnosis of sex of child, it is still being done on large scale and leads to selective abortions of female fetuses. A survey published in Lancet has indicated overall about 10 million fetuses might have been illegally aborted in last two decades. It is matter of national shame where we are discriminating female child even in 21st century.

Key words: Fetus, pre-natal, abortion.

Introduction: The female population in India in certain states is declining at alarming pace. This is due to widespread female feticide particularly in Northern India. It is likely to lead to social imbalance in society. The legal provisions of punishment for prenatal sex selection have thus failed. There is need to make it a national campaign. Govt. is trying to promote female ratio but more is to be done.

Discussion: Population census in India shows that the number of girls has been falling steadily for past two decades. For every 1000 boys up to age of six years, the number of girls dropped from 962 in 1981 to 945 in 1991 and 927 in 2001. As reported by research conducted by PGI, Chandigarh in collaboration with University of Toronto in Canada about 50 lac female fetuses are missing in last one decade. There is preference for male child in family and thus female fetuses are being aborted illegally. There is need to stop this oriental practice otherwise it will lead to gender imbalance in society.

Conclusion: There is need for mass educations to make “save girl child” campaign successful. The legal provisions should be effectively implemented to check the
Determination of Lead in Forensic Samples

By

Atomic Absorption Spectrophotometer

*Jaiswal A.K., **Moon D.V., ***Moharana M. and ****Gupta M.

*Dept. of Chemistry, LNJN National Institute of Criminology and Forensic Science (M.H.A.), Sector-3, Outer ring road, Rohini, Delhi-110085
**Indian Bureau of Mines, Bangalore –560022
***Indian Bureau of Mines, Bangalore-560022
****Chemistry Deppt., Gorakhpur University, Gorakhpur - 273009

Key words : Lead, AAS, Absorbance, swabs, HCL, HNO₃, Beer: Lamberts Law, Lamps

ABSTRACT

Determination of Lead (Pb) is very important in forensic samples specially in gunshot residue for identification of the shooter in a gunshot case. A simple and fast method of determination of Lead (Pb) by Atomic Absorption Spectrophotometer has got many advantages over other methods e.g colorimetric method in terms of reliability and accuracy of results. Swabs can be taken from hands with a suitable acid such as Hydrochloric Acid (HCl) or Nitric Acid (HNO₃) and the sample solution can be aspirated into the flame of an Atomic Absorption Spectrophotometer for determination of Lead (Pb) content. The present method is simple, rapid and reproducible and providing excellent quantification up to 0.05 ppm.

INTRODUCTION

Chemical analysis of various types of forensic samples are carried out for determination of different types of metallic elements and other chemical species to establish physical evidence at the scene of crime. Determination of Lead [1-5] is very important as a forensic evidence in investigation of crime. For example determination of Lead (Pb) is carried out on the residue of a case of burning to find out whether any petroleum product like petrol which contain Lead (Pb) was used in burning. Similarly fatal lead shot in a murder by firearm can be linked with the stock of similar lead shot with the accused on the basis of detailed matching in gross and trace element pattern. In a typical gunshot case the identification of the shooter is on the basis of the deposit of some gunshot residue on the hands of the shooter during firing. When a gun is fired the hand or hands holding it receive particles of Lead (Pb), Antimony (Sb) and Barium (Ba) from the discharge. In a gunshot residue normally the Lead (Pb) content is much more as compared to other metals. Typically the gunshot residue from a firing hand may contain 13 to 326 microgram Lead (Pb) as compared to a non firing hand which may contain 4 to 95 microgram of Lead (Pb).

To determine Lead (Pb) quantitatively the swabs were taken from hands in 5% Hydrochloric Acid (HCl) or 5% Nitric Acid (HNO₃) and were analyzed by Atomic Absorption Spectrophotometer[6-11] by aspirating the sample solution into the flame. The absorbance values were noted and the concentration values...
were found out.

**EXPERIMENTAL**

**Instrument**
ECIL Atomic Absorption Spectrophotometer

**Instrumental Parameter**
- Lamp Current: 5.0 mA
- Flame Type: Air - Acetylene
- Flame Stochiometry: Oxidizing

**Working Conditions**

<table>
<thead>
<tr>
<th>Wavelength (nm)</th>
<th>Slit Width (nm)</th>
<th>Working Range (ppm)</th>
<th>Sensitivity (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>217.0</td>
<td>1.0</td>
<td>2 - 20</td>
<td>0.05</td>
</tr>
<tr>
<td>283.3</td>
<td>0.5</td>
<td>10 - 40</td>
<td>0.15</td>
</tr>
<tr>
<td>261.4</td>
<td>0.5</td>
<td>100 - 450</td>
<td>2.50</td>
</tr>
</tbody>
</table>

**Preparation of Standard Solutions**
Suitable portions from E.Merck standard 1000 ppm solution were taken and diluted with high grade deionised water to get the desired standard solutions. A series of standard solutions such as 2 ppm, 5 ppm, 7 ppm and 10 ppm were prepared.

**Calibration Graph**
The calibration curve was obtained by plotting a graph between concentration and absorbance values at 217.0 nm. The graph is shown fig. 1.

![Calibration Curve for Lead](fig1.png)

**RESULTS, DISCUSSION AND CONCLUSION**

It was observed that there was linearity and the calibration curve obeys Beer:Lambert law. The calibration curve shows a linear range of 2 to 10 ppm. (fig.1 and table1) Sample solutions were diluted suitably to fall within the liner range. Instrument was optimized with respective to burner position, lamp current, flow of fuel and oxidant in order to get maximum absorbance values. The method is very fast and the result obtained for different samples were found to be more accurate and reliable as compared to results obtained by other methods. The strength of this method lies in the selectivity of particular metal ion (in this case lead) and hence non interference of other metallic elements present in the sample.

**Table 1: Concentration and absorbance value for Calibration Curb**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Concentration</th>
<th>Absorbance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>0.128</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>0.302</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>0.434</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>0.584</td>
</tr>
</tbody>
</table>

**ACKNOWLEDGEMENT**
The authors are thankful to The Director, LNJN N.I.C.F.S, Delhi for his encouragement towards research work and providing necessary facility for the same. Thanks are due to Dr. A.C. Rajvanshi, Asstt. Director & Head of Chemistry Division LNJN N.I.C.F.S. Delhi for his valuable guidance and constant...
motivation through out the work. Authors also express thanks and gratitude to the Additional Director, LNJNI N.I.C.F.S. Delhi for his valuable suggestions and support.

REFERENCES
07. Welz B; Atomic Absorption Spectrometry, 2nd edition, VCH Verlaggesellschaft mbH, Weinheim (Germany), 1985
February 28 – March 4, 2006
43rd Annual Meeting Academy of Criminal Justice Sciences at Baltimore, USA
Contact: E-mail: lmonaco@acjs.org
Web: www.acjs.org
2006, March 2-5,
ACLM 2006 45th Annual Conference at Harrah’s Las Vegas Hotel & Casino, Las Vegas, Nevada
2006, April 2-7,
18th International Symposium on the Forensic Sciences Classroom to Courtroom at Esplanade Hotel, Freemantle, Western Australia
Contact: Dr. Clive Cooke, Chair, Organising Committee.
2006, May 15-16,
International Symposium on Craniofacial Reconstruction
Contact: E-mail: guy.willems@med.kuleuven.ac.be
Web: www.mfo.be
2006, May 17-19,
Annual conference of the Association of forensic physicians
Contact: E-mail: admin@afpweb.org.uk
oragdott@doctors.org.uk
2006, May 17-20,
International Symposium on Forensic Odontology
Contact: E-mail: guy.willems@med.kuleuven.ac.be
Web: www.mfo.be
2006, June 14,
EAFS 2006 4th European Academy of Forensic Science meeting
Contact: E-mail: erkki.sippola@krp.poliisi.fi
2006, August 23-26,
20th Congress of International Academy of Legal medicine in Budapest
Contact: Web: www.motesz.hu
2006, October 16-18,
The 20th World Congress of the International Traffic medicine Association (ITMA)
Contact: E-mail: MorrisO@vim.org;
Web: www.trafficmedicine.org
November 1-4, 2006
American society of Criminology Meeting at Los Angeles, USA
Contact: Web: www.asc41.com
2007, May 16-20,
9th Cross Channel Conference 2007
Contact: E-mail: ianwall@doctors.org.uk
www.palacetorquary.co.uk
World Information Syndicate is in the forefront of new publishing and distribution technologies. The company devotes itself to printing and publishing in the furtherance of the acquisition, advancement, conservation, and dissemination of knowledge in all subjects to the advancement of education, learning and research. We can positively meet your complete requirement of journals/books/CD-ROMs on the basis of our infrastructure, rich and vast experience of about 7 years in serving several thousand publications to over 2700 clients both in government and private sectors. Our team of highly professional managers and dedicated staff of over 60 ensure efficient service to our valued clients. We deal with over 3200 publishers internationally. This expertise is available to scientific societies and other not-for-profit organizations that want to produce technically advanced materials for their clients and to expose Indian scientific publications to a global audience.

**OUR SERVICES**
- Subscription management
- Publishing/Printing and binding
- Editorial support/copywriting
- Distribution & Marketing

Libraries and individuals are requested to contact us for the services mentioned above

**WORLD INFORMATION SYNDICATE**
41/48, DSIDC Complex, Pocket-II, Mayur Vihar, Phase-I P.O. Box No. 9108, Opp. Police Station, Delhi - 110 091 (India)
Tel: 91-11-55270068, 48042168, Fax: 91-11-48042168
E-mail: wisindia@vsnl.net, Website: www.wis-india.com/www.medicolegalupdate.org
About the Author

Dr. R.K. Sharma joined AIIMS, New Delhi in 1977 as an undergraduate student. He is now working there as Additional Professor in Department of Forensic Medicine. He has a teaching experience of over 22 Years. He has published more than 50 national and international Scientific papers. He has supervised many scientific projects of national and international importance. He is currently editor of an international journal “Medico-Legal Update”.

About the Book: Specially designed for undergraduate students in Forensic Medicine, this concise textbook would help them in covering their syllabus at a quicker pace during examinations. The book covers the whole curriculum as prescribed by Medical Council of India. It would also be useful for students of Ayurvedic, Homeopathic, Unani and Sidha systems of medicine.

Key Features: Includes contemporary developments like cloning, euthanasia, date rape and drug facilitated sexual assaults.

Toxicology has been discussed as per standard clinical practice.

Also discusses aluminium phosphide poisoning and heroin abuse.

Chapters on medical negligence include new concepts like comparative negligence and post-CPA scenario in medical practice.

The chapter sequence has been designed as per teaching schedule in medical colleges.

It is an ideal textbook for undergraduates all the time and specially at the time of examinations.

ISBN: 8181478568, Price: Rs. 275.00, Year: 2005, Published By: Elsevier

To Procure this world class book, Please contact your nearest medical bookshops or authorized vendor or

Elsevier: The Marketing Department
17A/1 Lajpat Nagar-IV, New Delhi - 110024, India
Tel: +91-11-26447160-4, 528902000, Fax: +91-11-26447165, Email: infoindia@elsevier.com
INTRODUCTION

Hermaphroditism implies a discrepancy between the morphology of the gonads and that of the external genitalia.

It is broadly classified into three categories:
1. Disorders of chromosomal sex
2. Disorders of gonadal sex
3. Disorders of phenotypic sex.

The Disorders of phenotypic sex includes Male and Female Pseudohermaphroditism.

The Male Pseudohermaphroditism can result from
1. Defective androgen synthesis,
2. Defective androgen action,
3. Defective Mullerian duct regression and
4. Uncertain causes.

The testicular feminization syndrome is a common type of Male Pseudohermaphroditism of the receptor disorder variety, estimating about 1 in 20,000 to 1 in 64,000 Male births. It is said to be the third most common cause of primary amenorrhea after gonadal dysgenesis and congenital absence of vagina.

In Male Pseudohermaphrodite, the genotype is XY but the external genitalia are incompletely virilized, ambiguous or completely female. When gonads are found they are invariably testis; their development

CASE REPORT

A 14 years aged female attended the Surgery O.P.D. with history of Bilateral Inguinal swelling and pain. After preliminary examination a provisional diagnosis of Bilateral Inguinal Hernia was given with the advise for operative reduction of hernia with herniorraphy. Preoperative routine blood examinations were found within normal limits. On Ultrasonography, the ovaries and uterus were not visualized.

During surgery, the inguinal canal was explored which showed bilateral testis with epididymis and vas deferens. A biopsy was taken from the testicular tissue leaving the testis in situ as prior consent of the guardians was not taken.

The case was referred to the Department of Forensic Medicine for medicolegal opinion.

On examining she had female external characteristics, age 14 yrs, height: 5ft.2in., weight: 40 kgs. The family history showed the subject was second member of a family of three sisters and one brother. Menarche had not commenced. The dental study revealed second molar erupted in three quadrants and third molar not erupted in any quadrant of jaws.

There was moderate growth of the breast, with partial development of areola and nipple, conforming to third stage of development.

There were few downy pubic hairs while the facial and axillary hairs were absent. The hands and feet showed male features.

The hymen showed central opening.

The vagina showed a blind ending in its upper part.

The histopathological examination report of the said testis revealed normal Leydig cells and seminiferous tubules without spermatogenesis.

The blood Testosterone, Estradiol and LH level were above normal.
DISCUSSION

The case of Male Pseudohermaphroditism was detected during the operative correction of an inguinal hernia as is a common mode of presentation.

The psychological behaviour was feminine. Her voice, mode of upbringing, gait were all feminine. Her height was above the average in relation to age.

The development of secondary sexual characteristics were feminine, with normal development of breasts, hairs, external genitalia. The vagina was ending in a blind pouch with absent uterus and ovaries.

There was bilateral undescended testis with normal histological features.

The blood Testosterone, Estradiol and LH levels were raised due to defective feedback regulation caused by resistance to the action of androgen at the hypothalamic-pituitary level.

CONCLUSION

The case of Testicular Feminization Syndrome was advised immediate gonadectomy as the incidence of malignancy is high in cases of undescended testis. Bilateral gonadectomy was done with due consent of the guardians. Hormone replacement therapy with Estrogen was advised to prevent menopausal symptoms and other evidences of Estrogen withdrawal.

REFERENCE

“Legal Aspects of Patient Care” is written with the aim of educating medical practitioners and para-medical staff about patient’s rights, current laws relating to medical practice and how to face menace of malpractice suits. The book has several chapters relating to doctor-patient relationship, consent, medical ethics, role of medical council, medical records, and most importantly, medical negligence. The emphasis has been laid on defining medico-legal aspects of injury in general, head injury and regional injuries. The common medico-legal problems/mishaps that occur in major medical practices like anesthesia, gynecology and obstetrics practice, surgical practice and practice by physicians have also been dealt with. A chapter on professional indemnity policies offered by the insurance complains also included. A major emphasis of this book is how to face common medico-legal problems like refusal of treatment, arrival of dead body and non-payment of fee etc. Guidelines on how to avoid medical malpractice suit/medical negligence are prescribed. It is hoped that this book will help the persons working in medical practice to discharge safe medical practice.

ABOUT THE AUTHOR

Dr. R.K. Sharma completed his MBBS and MD from the prestigious All India Institute of Medical Sciences, New Delhi. After completing his studies, he joined as a faculty member in the Department of Forensic Medicine at All India Institute of Medical Sciences, New Delhi and is presently working as an Additional Professor there. He has published a large number of scientific papers in national and International journals. He has also supervised many research projects of national importance. He has toured extensively all over India and abroad to gain vast medico-legal experience. He is an examiner for many universities in India. He is an office bearer of many national and international organizations. His main zeal is education of medical practitioners about consumer rights and legal aspects of patient care so that they can discharge safe medical practice. He is a strong advocate of patient’s rights and seeks improvement in patient care in India. He has delivered many talks regarding this at the Indian Medical Association, Punjab Health System Corporation, Central Health Scheme and various hospitals and nursing homes. He is the Editor-in-Chief of the international journal “Medico-Legal Update”.

Published by MODERN PUBLISHERS
Gulab Bhawan, 6, Bahadur Shah Zafar Marg, New Delhi-110002, INDIA
Fax : 91-11-23319471, E-mail : mgulab@del2.vsnl.net.in