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AIMS AND SCOPE

This journal is being published to expand the academic activities and spread the knowledge and latest research in the field of ethics, trauma and victimology. Journal publishes original research papers, review articles, case reports, letters to the editor and review of books on ethics, trauma and victimology. This journal is supported by Society for Prevention of Injuries and Corporal Punishment (SPIC). This journal is supporting the aims of the Society. This journal also highlights the achievements of the SPIC and its members.

This journal covers the various aspects of ethics, evidence based medical ethics, ethical dilemmas and various dynamic issues related to ethics. It also covers the ethical issues related to Forensic Nursing Science, Forensic Odontology and Forensic Psychiatry. It also covers the ethical aspects of Toxicology including Environmental Pollution. It covers issues related to all sorts of corporal punishment and their prevention particularly in schools. It covers physical as well as psychological aspects of trauma and clinical forensic medicine related to all types of injuries and prevention of injuries. It covers all aspects of Victimology including etiology, crime scene investigation and prosecution.

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Department of Forensic Medicine and Toxicology
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Editor-in-Chief: Prof. Rakesh K Gorea

From Editor's Desk

You are welcome to the editorial forum of International Journal of Ethics, Trauma and Victimology (IJETV). An attempt has been made by the editorial board to bring a journal which covers various aspects of ethics and its application to various fields of medical and paramedical fields and different branches of forensic sciences. Field of ethics is becoming more relevant with the upcoming privatisation in the various fields of medicine.

Field is trauma is gaining importance as deaths and morbidity due to trauma is increasing worldwide and is a matter of concern for the various planning agencies as there is considerable financial loss due to treatment, rehabilitation and man days lost due to trauma.

Victimology is a vast branch involving various professional and planning groups and is a matter of serious concern for the society. If we wish to reduce the crime study of victimology can never be neglected and needs to be researched and funded for the betterment of the society.

This is a platform for members of society for prevention of Injuries and Corporal Punishment (SPIC) to raise their views about the topics which they feel are important for the SPIC and where they think they need to raise their voice to prevent corporal punishment and injuries.

I must thank all the persons concerned with the publication of the inaugural issue of the journal. I convey my thanks to the authors, editors, members of the international editorial board, managers and philanthropists organizations who have made it possible to bring this issue to you. I especially thank governing board members of Ming and Coldwell, Hong Kong for their financial help to this journal. I profusely thank to SPIC for supporting the cause of journal of IJETV.

RK Gorea

Editorial

Evidence based medical ethics: A critical evaluation

Citation: Gorea RK. Evidence based medical ethics: A critical evaluation. *Int J Eth Trauma Victimology 2015*; 1(1):5-7.

Abstract

Education in the medical colleges in some parts of the world and treatment of the patients in most parts of the world is leaning towards evidence based practices and medical ethics are no exception to this trend. The ethical values of the society are changing since the days of Hippocrates when the moral values were controlling the profession and earning of money by medical professionals. Following these values sometimes lead to lot of dilemmas in the medical profession. Due to increasing investments in the medical establishments and emergence of corporate hospitals aims and visions of healthcare providers are changing and ethical dilemmas are cropping up while treating the patients. Evidence based ethics are definitely a patient centered approach where individual cases can be treated depending upon the available evidence and it will be easy to solve the ethical dilemmas in a way where the interest of patients as well as health care providers are not laid up. It is better to know the good points of any emerging field but simultaneously it is our duty to know the limitations of the same.

Keywords: Medical ethics, ethical dilemmas, evidence based medical practice, litigations, case-based ethics, research based ethics

Introduction

"Ethics are the conscious reflection on our moral beliefs and attitudes. Ethical Principles justifies or defends moral rules and/or moral judgments[1]". Ethics have developed gradually by the thoughts of philosophers, theologians and rulings of law and regulations[2]. Actually ethics are how people should act or ought to act[3] There are usually three different ways of interpreting ethics i.e. descriptive, normative and analytical. Descriptive means how people are, normative means how people should be and analytic which is also called meta-ethics[4] "is the philosophical study of nature of questions about ethical judgements[5]." Ethical rounds in the hospitals are helpful to see the various angles of the ethical issues, to get the insight into various ethical issues and are helpful to understand the various aspects of ethics[6].

"Evidence-based medicine" (EBM) is the use of therapy that had been proved and tested in a rigorous manner to the point of its becoming "state of the art[7]. "Evidence based medicine is the conscientious explicit and judicious use of current best evidence in making decisions about the medical care of the individual[8]". Evidence based medicine highly appreciates evidence based treatment so a trend started in the present scenario to provide solution to ethical dilemmas on the basis of cases reported in the literature[2] and we can say that evidence based ethics are similar to ethics based medicine[9]. Jansen is of the opinion that if evidence based medicine is being used then benefit of evidence based ethics must not be denied to persons using these methods so that they can know what harm or benefits they are going to face to adopt a new technology and government agencies should also try to gather evidence based ethics simultaneously before formulating the policies and laws[10].

Evidence based system first developed in the practice of medicine and then it spread to the other fields of education including ethics. It is better to understand evidence based medicine in order to understand the evidence based ethics completely[11]. Ethical dilemmas are solved by clinicians in different ways. It varied from being normative to being empirical or objective. Being objective may be trying to solve the things as the research and cases are reported in the literature and this trend continued to get unstinted support by Tyson[12] and Roberts[13]. It is better to rely on evidence based ethics when there are serious and prolonged consequences for the patient and their families and there is less of clarity or uncertainty of decision taking due to involvement of ethical issues and which also will be better acceptable to all concerned[14].

Ethics are sometimes interpreted differently by different users and experts. This leads to criticism of the method of interpretations of ethics. Confidence in normal ways of interpretation of ethics is decreasing and evidence based ethics is threatening the normative ways of interpretation of ethics[11]. Sometimes cost of critical care jeopardizes the ethical issues[11] particularly in countries where there is always shortage of resources. Evidence based ethics appears to legitimize the ethical decisions[15]. Inquiries based upon evidence based ethics provide practical solutions to many ethical problems which are faced in the present scenario[13]. Synder & Guthier (2008) have beautifully helped to solve the ethical dilemmas by evidence based legal precedents and application of ethical theories taking into consideration the gender, age and cultural backgrounds of the patients by presenting typical patient scenarios[16].

Discussion

Caution must be used to label anything as evidence in ethics and it must be statistically proven evidence and must be used in a scenario for which it has been proved to be useful[17]. Sugarman (2004) is staunch supporter of evidence based ethics but prefers the strongest evidence in the form of randomized control trials[18]. Goldenberg (2005) is strongly opposed to the movement of evidence based ethics as he opines that evidence based ethics are incompatible with bioethics normative mandate and should not be used and should be further researched[11]. Evidence based ethics gives an indication of attitudes and practice at a particular time but cannot be simply consequent of empirical observation of practice but ethical principles will help us to do research to be useful for application of these principles to solve the ethical dilemmas[2].

There is a big question what will be considered good evidence in this evidence based ethics[17]. Strech (2008) is of the opinion that use of evidence based ethics should be discouraged till we a consensus can be reached to differentiate between the quality of information available by empirical ethics[15]. There are challenges for training in basic skills for locating, communicating and critically appraising and determining the quality standards and adequate reporting of empirical evidence research in journals[19]. There is always a need for training of the staff for using evidence based ethics before we start using it and it has been documented that such training is useful which was demonstrated in a controlled trial of pediatric house staff[20]. We should not forget the limitations of answering ethical dilemmas solely on the principles of evidence based ethics[2]. There should be a rigorous defining of evidence and rigorous implementation of the established criteria to get this evidence[17].

There are ethical challenges in any research and the best thing to face these challenges can be to rely on evidence based ethics particularly in the areas of risk benefit analysis and surrogate consent and decision making capacity in neuro-therapeutics research[21]. Data of evidence based ethics may help in certain situations to resolve certain moral issues in a better way e.g. participation of mentally ill persons in a research. In such situations it provides practical solutions[13]. The ultimate aim of the evidence based medicine should be for the benefit of the patient and not the financial interest of the treating doctor or institution[17].

Conclusion

It appears that with evidence based ethics approach subjective biases in interpretation of ethics are bound to become obscure in the times to come. Evidence based practices are gaining ground fast and it will be better to adapt to the emerging field of evidence based medical ethics but simultaneously we should not lose the basic focus of the ethics in using evidence based ethics. There may be situations when there is no satisfactory evidence in the literature and there are limitations of applications of evidence based ethics. In my opinion it may be better to use evidence based ethics and normative interpretation of the ethics judicially so that both methods supplement each other rather than confronting each other till we can adopt the approach of evidence based ethics without any criticism or in those situations where normative interpretation is posing a lot of dilemmas. Further evidence based ethics must be regularly evaluated to see that these are not causing more harm than benefits to the patients.

Conflict of Interest
None

Dr. R K Gorea
MD, DNB, MBA, PhD
Editor in Chief

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Interaction between expression of angiogenic factors and pathology of the microvasculature and cardiomyocytes in myocardial tissue of patients with diabetes mellitus

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Abstract

Sudden death with myocardial infarction has always been a challenging issue for the investigators and forensic pathologists. When a person suffering from angina or myocardial infarction is simultaneously suffering from diabetes mellitus issue becomes even more complex for the investigators as usual signs & symptoms of MI may not manifest so as to rouse a suspicion of MI. This study will help the pathologists to understand the microscopic changes of diabetic cardiomyopathy better in a case having MI with diabetes. This study was done in 47 cases to know the pathology of microvasculature and cardiomyocytes in myocardial tissue of diabetic patients and expression of angiogenic factors.

Keywords: Sudden death, diabetes mellitus, myocardial infarction.

Introduction

The major cause of both morbidity and mortality in diabetic patients is cardiovascular disease. Diabetic cardiomyopathy is proposed to affect up to 50% of patients with Type 2 diabetes[1-4]. Light and electron microscopic ultra structural changes of the cardiomyocyte have been quantified in a range of animal models of diabetes including the dog[5], monkey[6], rabbit[7], mouse[8] and rat[9-12]. However, widely varying results have been reported with regard to the onset, type and severity of cardiomyocyte pathology[10] . Studies in humans are limited[13].

Pathogenesis of cardiomyocyte involvement in diabetes mellitus involves vascular endothelial cell dysfunction and cardiomyocyte necrosis[14]. Whilst most structural studies of the myocardial vasculature have focused on coronary arteries and intramural arterioles, few studies have assessed myocardial capillary structure in either clinical or experimental diabetes showing significant ultrastructural changes in cardiomyocytes with or without concomitant vascular changes in the diabetic heart[11,13,15]. These changes include thickening of endothelial cytoplasm, endothelial cell hypertrophy, cytoplasmic bridging and irregular thickening of capillary basement membrane[8, 11-13, 15-17].

Vascular endothelial growth factor (VEGF) has been shown to contribute to the development of collateral vessels[18] and is expressed in increased quantities in cardiomyocytes and arteriolar smooth muscle cells following MI in non-diabetic patients[19]. However, the expression of VEGF protein and mRNA, as well as its receptors, VEGFR1 and VEGFR2, are significantly decreased in the myocardium of both diabetic and insulin-resistant non-diabetic rats by 40-70%[20]. In diabetic patients, the normal molecular processes which regulate angiogenesis may be impaired, although there are no direct studies to substantiate this to date.

Emerging evidence suggests that HIF-1α and HIF-2α have important and independent effects on pathological angiogenesis. Cells respond to hypoxic stress through multiple mechanisms, including the stabilization of hypoxia-inducible factors (HIFs), which directly regulate the expression of more than 150 target gene[21].

Although functional changes in the diabetic heart are well established in the literature, the structural basis for these changes is not well defined. Most of the literature on ultra structural pathology of the micro vessels and cardiomyocytes is confined to animal models of diabetes, with studies in man being small and qualitative. It is therefore of considerable mechanistic and translational importance to define morphological and immunohistochemical changes in human diabetic myocardium. It was therefore decided to carry out a study with the objective to examine the interaction between expression of angiogenic factors and pathology of the microvasculature and cardiomyocytes in myocardial tissue of patients with diabetes mellitus.

Materials and methods

Biopsies from right atrial appendix were obtained of the forty seven patients underwent various cardiac procedures between June 2003 and January 2004at the cardiothoracic surgical department, Manchester Royal Infirmary. Before surgery, all patients underwent cardiac catheterization and coronary angiography. This study was approved by the local Ethics Committee, and all patients gave their written informed consent before participation. Patients were classified into three clinical groups:

1. Diabetic patients undergoing CABG alone (DIHD) (n=18).
2. Diabetic patients undergoing cardiac valve replacement with normal coronary angiography (D-IHD) (n=7).
3. Non-diabetic patients undergoing cardiac valve replacement with normal coronary angiography (control group) (n=22)

Formalin fixed paraffin embedded tissue were sectioned and stained with H&E for routine examination and primary and secondary antibody for immunohistochemical examination after antigen retrieval. Blocking was done using 1% hydrogen peroxide solution. All the tissues were stained by a panel of primary antibodies including vWF(M)+antiCD31a (monoclonal), vWF(P)+antiCD31 (polyclonal), antiVEGFb (polyclonal), antiVEGFR2b (monoclonal) and antiHIF-1αc(monoclonal). Biotin conjugated secondary antibody was applied at the recommended dilution in appropriate non-immune serum in TBS. Streptavidin-HRP and Biotin were diluted in TBS (pH 7.6) for 30 min. Microscopic assessment of the intensity of HIF-1α, VEGF and VEGFR2 staining on blood vessels and cardiomyocytes was semi quantified using a scale from 1 to 10 according to the intensity of staining.

Statistical analysis was performed using SPSS for Windows 14.0. All data are expressed the mean and standard error of mean (SEM). Clinical data were compared between groups by Kruskal-Wallis test or Mann-Whitney test, as appropriate. Linear regression analyses were performed to determine correlation between various pathological changes and angiogenic factor expression. Statistical significance was accepted for $P< 0.05$ (two-tailed).

Results

HIF-1α expression

Intensity and percentage of HIF-1α expression

There were significant differences in the intensity and percentage of HIF-1α expression in cardiomyocytes between the three groups (P= 0.001, P= 0.01). Thus, intensity of HIF-1αwas

Table1: Intensity and percentage of HIF-1α expression in controls and diabetic patients with and without ischemia

Parameters	Controls	D-IHD	DIHD	P-value
Intensity of HIF-1α staining	1.5 ± 0.3	2.8 ± 0.4	3.5 ± 0.4	0.001
Percentage of HIF-1α staining	30.7 ± 5.1	34.1 ± 5.7	48.2 ± 3.6	0.01

significantly increased in diabetic patients with and without ischemia compared to controls (P= 0.000, P= 0.03). In addition, the percentage of HIF-1α was increased in DIHD patients compared to D-IHD patients (P= 0.05) and controls (P= 0.007) (Table 1)

Interco-relation between HIF-1α expression and distal myocardial capillary pathology

There was a significant positive correlations between HIF-1α intensity with number of endothelial nuclei (P= 0.02). However, HIF-1α intensity correlated negatively with lumen area (P= 0.04). In addition, HIF-1α percentage showed a positive correlation with endothelial area (P=0.03), basement membrane

Table 2: Correlation between HIF-1α expression and distal myocardial capillary pathology

	Lumen area	Endothelial area	Pericyte area	BM area	Vessel area	Endothelial cellprofile	No of endo.cell nuclei	No of pericyte nuclei
HIF-1α intensity	R = 0.31 P = 0.04	R = 0.12 P = 0.32	R = 0.05 P = 0.86	R = 0.15 P = 0.24	R = 0.08 P = 0.7	R = 0.21 P = 0.2	R = 0.35 P = 0.02	R = 0.02 P = -0.62
HIF-1α percentage	R = -0.09 P = 0.45	R = 0.34 P = 0.03	R = 0.08 P = 0.7	R = 0.4 P = 0.01	R = 0.2 P = 0.18	R = 0.19 P = 0.35	R = 0.3 P = 0.02	R = 0.01 P = 0.87

P= P-value, R= Correlation Coefficient.

area (P= 0.01) and number of endothelial nuclei (P= 0.02) (Table3).

VEGF expression

VEGF expression in different blood vessel regions and cardiomyocytes

There was a significant difference in the expression of VEGF on vascular endothelium between the three groups (P= 0.002). Thus, it was significantly reduced in D-IHD patients compared to controls (P= 0.000). In addition, there was a non-significant trend towards a reduction in VEGF expression on the endothelium of DIHD patients compared to controls (P=0.06). No significant difference was found in VEGF expression on endothelium between DIHD and D-IHD patients (P= 0.11). There was no significant difference in VEGF expression on cardiomyocytes, basement membrane and pericytes between groups (P= 0.18, P= 0.09, P= 0.95) (Table4).

Inter-correlation between VEGF expression and distal myocardial capillary pathology in diabetic patients

There was a significant positive correlation between VEGF expression on endothelium and endothelial cell profile no./capillary (P= 0.01). In addition, VEGF expression on cardiomyocytes showed positive

Table 3: VEGF expression on cardiomyocytes, endothelium, basement membrane and pericytes in controls and diabetic patients with and without ischemia

VEGF Expression	Controls	D-IHD	DIHD	P Value
Cardiomyocyte	2.85 ± 0.21	2.66 ± 0.15	2.18 ± 0.31	0.18
Endothelium	2.62 ± 0.24	1.32 ± 0.13	1.62 ± 0.23	0.002
Basement Membrane	0.84 ± 0.09	0.79 ± 0.35	0.92 ± 0.11	0.09
Pericyte	0.12 ± 0.03	0.12 ± 0.06	0.08 ± 0.02	0.95

Correlation with endothelial cell profile no./capillary (P= 0.04) (Table4).

Table 4: Correlations between VEGF expression and myocardial capillary pathology

VEGF Expression	Lumen area	Endo area	Pericyte area	BM area	Vessel area	Endo cell profile	No of endo. cell nuclei	No of pericyte nuclei
Cardiomyocyte	R = 0.09 P = 0.8	R = 0.13 P = 0.32	R = 0.19 P = 0.4	R = 0.09 P = 0.7	R = 0.002 P = 0.9	R = 0.31 P = 0.04	R = 0.12 P = 0.5	R = 0.2 P = 0.12
Endothelial cell	R = -0.23 P = 009	R = 0.2 P = 0.18	R = 0.08 P = 0.63	R = 0.04 P = 0.65	R = 0.14 P = 0.4	R = 0.4 P = 0.01	R = 0.05 P = 0.74	R = 0.12 P = 0.3
Basement Membrane	R = 0.2 P = 0.1	R = 0.08 P = 0.6	R = -0.13 P = 0.12	R = 0.12 P = 0.8	R = -0.19 P = 0.2	R = 0.1 P = 0.3	R = 0.03 P = 0.8	R = 0.16 P = 0.3
Pericyte	R = 0.09 P = 0.86	R = 0.14 P = 0.3	R = 0.07 P = 0.9	R = 0.24 P = 0.1	R = 0.21 P = 0.17	R = 0.05 P = 0.9	R = 0.02 P = 0.8	R = 0.002 P = 0.96

P= P-value, R= Correlation Coefficient

Discussion

Epidemiological and clinical trial data confirm the higher incidence and prevalence of heart failure in diabetes. Although functional changes in the heart of diabetic patients are well established in the literature, the structural basis for these changes is not well defined. In the present study the expression of key angiogenic factors (HIF-1_α, VEGF, and VEGFR2) has been quantified in relation to both pathology and key clinical variables. We have shown a significant reduction in capillary density in diabetic patients with ischemia. This finding is in accordance with the finding of other researchers. It is well known that in diabetic myocardium there is an inadequate response to ischemia which results in poor collateralization[18,22, 23]. The impaired angiogenic response in diabetes has been explained by various mechanisms. It could be as a result of the presence of vascular dysfunction, characterized by endothelial and vascular smooth muscle impairment[24-26].

Reduced expression of VEGF and its receptors, along with reduction of other angiogenic factors and increase in expression of anti angiogenic proteins have been demonstrated in animals[20,27]. In the present study, HIF-1_αexpression was detected in cardiomyocytes and the expression of HIF-1_α was increased in diabetic patients compared to controls, but was maximally expressed in DIHD patients. Our observations are in contrast to other studies conducted in experimental animals[28]. Expression of HIF-1_α is an important process allowing the myocardium to adapt to a reduction in blood flow and oxygenation. Experimental studies demonstrate that it might be a marker of persisting ischemia which indicates the presence of viable myocardium reacting to revascularization for a long period after an MI[29, 30]. This explains our findings that expression of HIF-1_αon cardiomyocytes of diabetic patients is increased and may therefore indicate ongoing ischemia, which is the main activator for myocardial HIF-1_α production. The increase of HIF-1_α in D-DIHD patients suggests that although these patients had normal coronary arteries on angiography they still had micro vascular abnormalities characterized by low capillary density, reduced capillary luminal size, and thickening of basement membrane which could lead to ischemia and subsequent activation of HIF-1_α. Another explanation for increased HIF-1_α expression in D-IHD patients is it could be related to oxidative stress caused by ROS as hyperglycemia causes an increase of ROS and a state of pseudohypoxia which might activate HIF-1_αexpression[28, 31].

We show a significant negative correlation between the percentage of HIF-1_α expression and arteriole, capillary and total vessel density suggesting that HIF-1_α is upregulated by tissue hypoxia and ischemia. Thus, when vascular density increases via angiogenesis myocardial ischemia and hypoxia may reduce which subsequently down regulates HIF-1_α expression. In the current study, HIF-1_α expression correlates negatively with capillary luminal area whereas it correlated positively with basement membrane area and number of endothelial nuclei. These findings again support our hypothesis that coronary microangiopathy characterized by reduced luminal area, endothelial hypertrophy and thickening of basement membrane are associated with myocardial ischemia which stimulates HIF-1_αexpression.

The best characterized regulators of angiogenesis are VEGF/VEGF receptor system[32]. VEGF expression is upregulated in response to hypoxia[33, 34] and during physiological (wound healing) or pathological (tumor growth) needed for angiogenesis[35]. In the current study we define the expression VEGF and its receptor $VEGFR_2$ in atrial appendages of diabetic patients with and without ischemia. We show a reduction in VEGF expression on the vascular endothelium of diabetic patients compared to controls. Whereas, $VEGFR_2$ expression showed a trend towards an increase in diabetic patients compared to controls. This finding is in contrast to the finding of reduction in VEGF and VEGFR1 expression by 40-70%[20], absence of VEGFR1 and VEGFR2[36], and lowered VEGF, VEGFR1 and VEGFR2 in diabetic animals[37]. It is well known that in diabetic myocardium there is inadequate collateral formation as a result of an impaired angiogenic response. Thus the reduction in vascular density that we observe in the current study could be related to an impaired angiogenic response mediated by reduced VEGF in diabetic patient compared to controls. Recent experimental studies of diabetic myocardium have shown that low levels of VEGF precede all other features of diabetic cardiomyopathy and are followed by several changes which include increased apoptosis of endothelial cells, reduced numbers of circulating endothelial progenitor cells, reduced capillary density, and impaired myocardial perfusion. These changes lead to apoptosis and necrosis of

cardiomyocytes along with fibrosis and progressive diastolic and then systolic dysfunction [38]. Thus, downregulation of VEGF expression may initiate or aggravate diabetic cardiomyopathy. We show an increased expression of $VEGFR_2$ on vascular endothelium in diabetic patients compared to controls. This upregulation in $VEGFR_2$ expression in diabetic patients could be a compensatory mechanism for the reduction in VEGF expression. However, the compensation was not enough to mediate the growth action of VEGF.

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Role of brainstem auditory evoked potential in Forensic Medicine

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Abstract

Brainstem Auditory Evoked Potential (BAEP) is an important test used in clinical practice. It is used to diagnose auditory threshold changes and to characterize the type of hearing loss as it does not depends on voluntary response from the subject. Its role in forensic medicine becomes relevant for the assessment of type of hearing loss in medicolegal cases for conductive or sensory neural. It can be used for assessing nature of injuring cases of malingering and pinpointing the neuronal pathway, hhearing loss and whether the victim had hearing loss before the injury or after the injury. This study presents latencies of wave I, II, III, IV and V, interpeak latencies of wave I-III, I-V, III-V and amplitudes of waves I-Ia, V-Va and absolute amplitude R in 100 healthy normal hearing in medical students of same age group comprising of 50 females and 50 male for comparison of inter gender difference and for the purpose of establishing normal values. In the present study, it has been concluded that there is highly significant difference in the waves and interpeak latencies III, V and I-V between females and males. It was also found that the duration of wave I showed statistically highly significant differences and V-Va showed significant difference between left and right ear in females. It was also found that the duration of wave showed statistically highly significant difference in males.

Keywords: Brainstem auditory evoked response, wave latencies, interpeak latencies, forensic medicine.

Introduction

The Brainstem auditory evoked response (BAER) test measures brain wave activity within 10 millisecond that occurs in response to brief auditory stimulation to assess the conduction through auditory pathway up to midbrain[1]. Thus BAER is the assessment of normal functioning of auditory pathway. BAER comprises of five or more peaks from sequential activation of peripheral, ponto-medullary, pontine and mid brain portion of auditory pathways[2].

Wave I: Originates from the peripheral portion of VIII cranial nerve
Wave II: Originates from cochlear nucleus
Wave III: From superior olivary nucleus
Wave IV: From the lateral lemniscus.
Wave V: From inferior colliculi

As voluntary response is not required from the subject[3], its role in forensic evaluation becomes relevant. This may include assessment of type of

hearing loss, conductive or sensorineural; nature of injury in case of trauma; in cases of malingering, where victim presents with the complain of hearing loss and falsely alleges hearing loss for purpose of making grievous injury, the doctor can perform BAER and assess whether the victim is providing the correct information or not as here subjects response is not required.. Due to above reasons, it can be used as a tool for assessment of hearing loss in medico legal cases in forensic sciences where a victim comes with the complaint of hearing loss.

Materials and Methods

The present study has been conducted on 50 male and 50 female audiometrically normal healthy subjects in the age group of 18-24 years. The subjects for the study were taken up from amongst the students of Govt. Medical College, Patiala. inclusion criteria were subjects who had all the hearing tests like rene , weber test normal and all those subjects who showed abnormal hearing tests and have hearing loss conductive as well as sensorineural, due to any cause were excluded. The subject was asked to clean the area where electrodes were placed to reduce impedance, and the test was done in sound proof room, with the subject relaxed and having his back towards the recording machine.

The test was conducted on 'RMS EMG EP MARK II' it is the name of the machine with which test was performed of Recorders and Medicare. After explaining the procedure to the subject electrodes are placed on the mastoid processes bilaterally (reference), forehead (ground) and vertex (active)[4]. The BAER values were obtained in the form of graphical and numerical data in each case. This included waves I to V (in milliseconds), amplitude (millivolts) and interpeak latency (IPL in milliseconds) measured as the distance between the peak of two waves. e. g. I-V, I-III and III-V[2]. The obtained data was analyzed statistically and independent t-test was performed with the help of SPSS/PC + version 11.0. The p-value less than 0.05 were considered significant and p-value less 0.01 was considered highly significant.

Results

The present study was undertaken to establish the normal values and effect of gender on brainstem auditory evoked response. The present study was conducted on 100 audiometrically normal medical students, 50 males and 50 females, which were taken from Govt. Medical College, Patiala. The comparison of the brainstem auditory evoked potentials was done as shown in table 1to 3.

Table 1: Comparison of waves, interpeak latencies & amplitude of BAER in females and males

Parameters	Female		Male		'p' Value
	Mean	SD	Mean	SD	
I (ms)	1.60	0.18	1.64	0.20	0.07
II (ms)	2.76	0.25	2.76	0.21	0.43
III (ms)	3.61	0.29	3.70	0.19	0.002 HS
IV (ms)	4.87	0.31	4.89	0.21	0.30
V(ms)	5.49	0.42	5.63	0.30	0.005 HS
I-III (ms)	2.03	0.29	2.07	0.22	0.17
I-V (ms)	3.89	0.42	4.00	0.34	0.025 HS
III-V (ms)	1.90	0.44	1.93	0.35	0.25
I-Ia (mV)	1.13	1.80	1.60	3.01	0.08
V-Va (mV)	1.49	2.42	1.74	2.46	0.21
Amplitude R(mV)	1.82	2.02	1.81	1.31	0.48

There is highly significant difference in the waves and interpeak latencies III, V and I-V between females and males[5-8].

Table 2: Comparison of waves, interpeak latencies & amplitude of BAER between left and right ear of females

Parameters	Left Ear		Right Ear		'p' value
	Mean	SD	Mean	SD	
I (ms)	1.65	0.18	1.56	0.17	0.005 HS
II (ms)	2.78	0.24	2.74	0.20	0.28
III (ms)	3.64	0.29	3.58	0.16	0.09
IV (ms)	4.87	0.32	4.86	0.19	0.86
V (ms)	5.50	0.44	5.49	0.38	0.79
I-III (ms)	2.00	0.27	2.06	0.36	0.25
I-V (ms)	3.86	0.44	3.93	0.39	0.08
III-V (ms)	1.88	0.46	1.91	0.38	0.59
I-Ia (mV)	1.31	1.68	0.96	0.76	0.08
V-Va (mV)	1.86	2.39	1.12	0.44	0.024 S
AMPLITUDE R (mV)	1.91	1.86	1.72	1.43	0.52

It was found that the duration of wave I showed statistically highly significant differences and V-Va showed significant difference between left and right ear in females.

Table 3: Comparison of waves, interpeak latencies & amplitude of BAER between left and right ear of males

Parameters	Left Ear		Right Ear		'p' value
	Mean	SD	Mean	SD	
I	1.69	0.19	1.58	0.18	0.001 HS
II	2.77	0.21	2.74	0.22	0.36
III	3.73	0.19	3.67	0.20	0.06
IV	4.87	0.22	4.90	0.19	0.38
V	5.66	0.29	5.60	0.32	0.11
I-III	2.04	0.22	2.09	0.22	0.18
I-V	3.97	0.34	4.02	0.35	0.27
III-V	1.93	0.34	1.93	0.37	0.90
I-Ia	1.96	2.92	1.23	3.11	0.22
V-Va	2.31	3.03	1.17	1.59	0.02
AMPLITUDE	1.92	1.49	1.70	1.11	0.33

Table 3 shows comparison of mean and standard deviation and significance of waves (I, II, III, IV & V), interpeak latencies & amplitude of BAEPs between left and right ear of males. It was found that the duration of wave I showed statistically highly significant difference.

Discussion

BAEP is an important test used in clinical practice. It is used to diagnose auditory threshold changes and to characterize the type of hearing loss, to identify retrocochlear or central nervous system alterations, to assess the central auditory system maturity in neonates. Its sensitivity for detecting such conditions is optimal since it does not depend on information from patient.

As it does not depend on patient information its role in forensic sciences becomes relevant due to following reasons:

i. Assessment of type of hearing loss, conductive or sensorineural
ii. Severity of head injury
iii. In cases of malingering, where victim presents with the complain of hearing loss
iv. Pinpointing the neuronal pathway involved in hearing loss.
v. Whether the victim had hearing loss before the injury

Due to above reasons, it can be used as a tool for assessment of hearing loss in medico legal cases in forensic sciences where a victim comes with the complaint of hearing loss.

Because of questions raised by many authors about interferences from certain physiological factors e.g. sex, a study was needed to assess these variables in normal individuals. Also there was a need to establish normal values for our institute for the comparison of the subject with apparent hearing loss[8] .

This study presents latencies of wave I, II, III, IV and V, interpeak latencies of wave I-III, I-V, III-V and amplitudes of waves I-Ia, V-Va and absolute amplitude R of brainstem auditory evoked responses in 100 healthy normal hearing medical students of same age group comprising of 50 females and 50 male students and comparison of inter gender difference.

The mean value with standard deviation of waves I, II, III, IV, V, interpeak latencies I-III, I-V, III-V, amplitude I-Ia, V-Va & R of BAEP between females and males has been tabulated. The mean and standard deviation of BAEP between left and right ear of both females and males have been tabulated. From the tables it has been concluded that there is highly significant difference in the waves and interpeak latencies III, V and I-V between females and males. Furthermore the results can be explained by assuming that the stiffness gradient in the cochlea is 13% larger in females than in males[9]. This prediction is highly consistent with recent anatomical studies of cochlear length and gender, thus indicating possible important cochlear mechanisms that influence the main parameters of BAERs. Also difference in the latencies in females might be due to higher oestrogen levels[10.]

It was found that the duration of wave I showed statistically highly significant differences and V-Va showed significant difference between left and right ear in females. In males it was found that the duration of wave I showed statistically highly significant difference.

The difference between the left and right ear in the present study in wave I of BAEP has shown significance but there difference is less than 0.2 milliseconds, as it is seen in studies previously done that only if the value exceeds more than 0.2 ms between two ears of an individual, it may be of diagnostic importance[11].

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Teaching future dentists to detect and report suspected child abuse and neglect

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Abstract

Child abuse and neglect often presents with signs on the head and neck, which dental professionals examine on a regular basis. If educated on how to detect and report it in their schools, they can help in solving the problem of under-reporting. Although, some curriculums have been developed for educating dental students and a lot of stress has been laid on the issue through continuing education, still a lot of cases go unnoticed each year. There is one elaborate, robust and comprehensive curriculum with a multi - disciplinary approach reported in the literature, which was recently developed at the University of Tennessee. This article is a summary of the same. This curriculum has four phases, which are spread out in four years of education of the DDS students. The students are sequentially introduced to the findings of Suspected Child Abuse and Neglect (SCAN), they are shown case scenarios, they work with medical and law students to understand their professional and ethical duties, and are required to deal with a simulation case at the end. Future studies should assess the effects of this curriculum and its overall impact in the long run.

Keywords: Child abuse, neglect, dental education.

Introduction

According to recent reports from high-income countries, 4%–16% children face physical abuse every year, while 10% are neglected or psychologically abused[1]. Furthermore, 5%–10% girls and approximately 5% boys suffer penetrative sexual abuse. These numbers increase three fold if all forms of sexual abuse are included[2]. Parents or parental guardians perpetrate 80% of reported abuse and neglect. However, the official rates for substantiated child maltreatment remain 10 times lower than self-reported claims from victims and parents who admit to inflicting harsh punishment, due to underreporting[3-5]. Child abuse can kill children. According to the WHO, 155,000 children younger than 15 die each year due to abuse or neglect, accounting for 0.6% of all deaths and 12.7% of deaths due to any injury[6]. Furthermore, the long-term consequences of child abuse can lead to lower educational achievement, adverse mental and physical health outcomes, including a high risk that the victim will become a violent criminal[7].

With proper training, dentists can be very helpful in bringing unreported cases to light. Studies have shown that dentists are among the lowest of all health professionals reporting suspected child abuse and neglect[8]. In one survey-based study, it was reported that 20% of dentists and 9% of dental

hygienists reported at least 1 case of suspected child abuse. While 83% of dental professionals knew that they had to report suspected cases of child abuse, only 73% of students were aware of their legal responsibility[9]. This shows that not all oral health care professionals are equally prepared to identify and report suspected cases of child abuse and neglect. It has been shown that curriculums in dental schools include some information on the topic of child abuse, but the need to expand the scope of content to better prepare students has also been highlighted[10].

In regard to this, one school of dentistry has proposed a comprehensive curriculum on suspected child abuse and neglect (SCAN), to train and better prepare dental students: Ivanoff CS, Hottel TL. Comprehensive training in suspected child abuse and neglect for dental students: a hybrid curriculum[11].

The multidisciplinary, hybrid curriculum proposes the use of traditional and problem-based learning as well as experiential, reflective learning in actor role-play to deliver comprehensive SCAN education to dental students before graduation. The objectives of the curriculum are "to ensure that students are capable of identifying child abuse, addressing the concern with families, reporting suspicions to the proper authorities, assisting investigators in interpreting information, managing dental consequences of both physical and psychological trauma, advocating for their patients, and working with families affected by child maltreatment"[11].

The curriculum consists of 4 phases.

Phase I

Phase I focuses on the physical and behavioral characteristics that present during a general assessment in a child abuse and neglect case. The learning objective is to differentiate between physical and sexual abuse and between child abuse and neglect (Table 1). This process is accompanied by the presentation of worked case scenarios shown through visual aids (professional videos and slides). Clinical exercises would train students in techniques to collect critical forensic evidence when child abuse is suspected. Pre-clinical students are included in this phase.

Phase II

Before the students enter the third year, a combined lecture and problem-based management workshop would be given during summer orientation. It is a student-centered learning experience, in which preceptors guide small groups of students in resolving SCAN problems. New knowledge about child abuse is acquired by self-directed learning. Students collaboratively explore the literature to resolve the cases that are assigned to them, while intense discussions of cases and their resolutions stimulate students to think about strategies to deal with SCAN in the future.

These case scenarios help students understand the distinction between abuse and neglect before they enter the clinic. As the scenarios increase in difficulty, students are guided to grasp, rationalize, and acquire the professional, legal, and ethical responsibility to report SCAN and to act confidently and decisively without fear. Cases of abusive relationships vary and can involve physical, emotional, economic, as well as sexual abuse. An important objective is to help students understand the pattern of child abuse behavior and how the abuser can establish undue control over the victim through fear and intimidations, frequently including threats or the use of violence that affect victims' self-esteem and make them feel helpless.

Phase III

Early in the junior year, multidisciplinary, problem-based experiences would be conducted through a series of weekly workshops. Dental students would be placed in groups with medical and nursing students, which a social caseworker or law enforcement officer leads. This phase teaches students what to do and what not to do. The main emphasis is on the behavioral and communicative features of suitable responses when taking decisive action. Workshops studying worked cases and cases to be solved focus on students' communication skills so that they can effectively interview children and parents when they suspect abuse.

Phase IV

This final simulation-based phase is focused on interviews, in which professional actors play the role of the victim or the suspect. Clinical simulations with role-play are used to provide experiential and reflective learning to develop dental students' interviewing skills with patients, who are believed to

be the victims. The crucial factors of talking directly with the child and the parents are addressed.

The effects of child abuse and neglect can vary depending on each child's environment and personal characteristics. The consequences might be mild or very severe. They might disappear after a short period or last over a lifetime and affect the child psychologically, behaviorally, physically, or in all these ways. It is imperative not only to report child abuse and neglect, but also that communities provide a framework of prevention strategies and services before abuse and neglect occur and be prepared to offer remediation and treatment when necessary. Incorporating training about SCAN into dental education may help to better prepare dental students to act responsibly when suspecting cases of child abuse after graduation and may prove to be an effective preventive intervention in the long run. I Future studies should assess the effects of this curriculum and its overall impact in the long run.

Increased dentist vigilance about SCAN may save young innocent lives. As health professionals, it is not only the moral and ethical responsibility of all dentists to report suspected child abuse and neglect, it is their legal duty. Inaction, which in this case means dentist failure to report SCAN, is not only irresponsible and unethical, but is also illegal in the US. It is, therefore, incumbent upon dentists to know the legal consequences and to become familiar with the protocols and appropriate agencies to report suspected cases of abuse and neglect whenever suspected.

Table 1. SCAN curriculum guideline: recognition and intervention training

A. Recognizing child abuse and neglect
Goal 1: To become familiar with physical abuse, sexual abuse and neglect
Goal 2: To be able to recognize physical and behavioral indicators of child abuse and neglect clearly
B. Reporting requirements
Goal 3: To be able to identify when it is necessary to report to child protective services
Goal 4: To understand procedures for reporting to social services
Goal 5: To understand social services' response to a report
C. Intervention
Goal 6: To understand how to promote resilience in children
Goal 7: To become familiar with effective intervention strategies

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Diagnostic efficacy of cardiac troponin in post-mortem examination of acute myocardial infarction

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Abstract

Major challenges for forensic experts include selection of best effective diagnostic tests in the time sensitive identification of cause of death to avoid delay in postmortem examination cases. Sudden cardiac death due to acute myocardial infarction constitutes a significant portion of the autopsies that are conducted by forensic pathologists. Lack of specificity of clinical and conventional markers causes misdiagnosis and prevents or delays in the detection. Conventional biochemical markers like creatine kinase (CK), myoglobin, and lactate dehydrogenase is no longer a best choice in the detection, because of their low specificity to cardiac injury. Recent reports indicate cardiac troponin as an extremely sensitive biochemical marker which can detect even microscopic zones of myocardial necrosis. We herein, review cardiac troponin as a biochemical marker in autopsy cases of AMI and its impact on postmortem management that will lead to guidance for early detection with quick and reliable diagnostics methods.

Keywords: Biochemical markers; acute myocardial infarction; troponins.

Introduction

AMI is the world's leading cause of morbidity and mortality[1]. Sudden cardiac death due to acute myocardial infarction constitutes a significant portion of the autopsies that are conducted by forensic pathologists[1, 2]. It is a disease with a high rate of misdiagnosis because of less sensitive conventional markers which causes unnecessary delay in the diagnosis process in postmortem examination cases[2,3]. Due to limitations of histopathological findings, it is necessary to establish diagnostic utility of different biochemical cardiac markers in biological fluids for postmortem diagnosis of MI. Since, in an estimate, infarction is not apparent on gross examination until 12-24 hrs and light microscopic (H&E) changes are not apparent before 4-6 hrs[4]. Historically, coronary artery disease assessment has been mainly binary, using WHO criteria of symptoms, electrocardiography, and biochemical markers[3].

Because of these limitations it is necessary to establish diagnostic utility of different biochemical cardiac markers in biological fluids for postmortem diagnosis of MI. Since, myocardial infarction is accompanied by the release of structural proteins and other intracellular macromolecules into the cardiac interstitium[5]. CK, myoglobin, lactate

dehydrogenase, and aspartate aminotransferase were some of the classical used biochemical markers for autopsy cases[6]. But, because of low specificity of these conventional biomarkers for cardiac injury search for more specific alternative biomarkers recently gained momentum.

Recently, the cardiac markers troponin I (cTnI) and troponin T (cTnT) have become available. Troponin I, C and T form a complex that regulates the calcium-modulated interaction of actin and myosin in striated muscle[7]. Cardiac troponin I (CTn I) is more specific marker, without any cross-reactivity and never has been found in a healthy population. Also, its sensitivity allows detection of even microinfarction and acute myocardial infarction much earlier after the onset of ischemia by using a rapid one-step assay in body fluids in autopsy cases[8-10].

Biomarkers of myocardial infarction with reference to Cardiac Troponin:

Biomarkers of myocardial infarction incorporate cardiac troponin I and T (cTnI and cTnT), CK, myoglobin, and lactate dehydrogenase. Absolute CK, lactate dehydrogenase, and aspartate aminotransferase ought to never again be utilized for the determination of MI on the grounds that they have low specificity for cardiovascular damage and more particular option biomarkers of necrosis are accessible. Myoglobin offers confinements with these markers because of its high concentration in skeletal muscle. Be that as it may, in light of its little molecular size and subsequent fast rise in the setting of myocardial necrosis, it has held esteem as an early marker of MI. In any case, this potential advantage of myoglobin may be decreased with utilization of enhanced affectability of more up to date troponin measures[11]. Albeit total CK is a sensitive marker of myocardial damage, it has poor specificity because of its high concentration in skeletal muscle. Due to its more concentration in skeletal myocytes, the MB isoenzyme of CK offers an enhanced affectability and specificity contrasted to total CK. in any case, CK-MB constitutes 1%–3% of the CK in skeletal muscle, and is exhibit in minor amounts in intestine, diaphragm, uterus, and prostate. Thusly, the specificity of CK-MB may be disabled in the setting of significant damage to these organs, particularly skeletal muscle. CK-MB subforms might likewise be utilized as an early rising indicator of MI[12] yet are not utilized today. The analysis of intense MI obliges discoveries of a common rise and/or fall of a biomarker, in conjunction with clinical proof. Since recognition of intense MI is imperative to prognosis and treatment, measurement of biomarkers of necrosis is shown in all patients with suspected AC. The creatine kinase-MB isoenzyme (CK-MB) has been a benchmark for biochemical markers, but diagnostic utility of this cardiac marker for post-mortem diagnosis of MI has not been fully established, as it is not specific for myocardium and in some cases negative predictive value obtained. Data are lacking on the new markers, yet using all of conventional biochemical marker is inappropriate and expensive.

Subsequently, forensic medicine needs more sensitive biochemical markers for the post-mortem diagnosis of acute myocardial infarction. On the premise of enhanced affectability and predominant tissue-specificity contrasted and the other accessible biomarkers of necrosis, cardiac troponin is the favored biomarker for the recognition of myocardial infarction. Rather than CK, cTnI and cTnT have isoforms that are one of a kind to heart myocytes and may be measured by assay utilizing monoclonal antibodies particular to epitopes of the cardiac form[13-15]. The advantage of cardiac troponin over different biomarkers of necrosis has been firmly established in clinical studies. Testing for cardiac troponin is associated with less false-positive results in the setting of accompanying skeletal muscle injury[15-17], furthermore gives unrivaled segregation of myocardial damage when the concentration of CK-MB is normal or minimally increased[15, 18, 19].

Additionally, the relationship between increased concentration of cardiac troponin and a higher risk of repetitive cardiac occasions in patients with typical serum concentration of CK-MB has affirmed the clinical pertinence of recognizing circulating troponin[20-22] . The aim of this review is discuss the sensitivities and specificities of cardiac troponin T (cTnT) and heart troponin I (cTnI) in serum and pericardial liquid for the post-mortem diagnosis of acute myocardial necrosis (AMI). Recently, cardiac troponin (cTnI or cTnT) has proven to be nearly absolute myocardial tissue specificity, thereby reflecting even microscopic zones of myocardial necrosis. Therefore, quick and reliable diagnostics methods for troponin detection may optimize the use of the time and resources of the autopsy pathologist and also the chances of misdiagnosis. Role of troponin in medicolegal autopsy cases and its future prospects in order for its validation and

implementation in subjects who had died from myocardial infarction will be conferred in depth.

Ischemic heart disease is the leading cause of death in industrialized countries. Sudden death as a result of cardiac damage is a common cause of acute death in forensic pathology[23-26]. Although it is not difficult to detect typical myocardial lesions using conventional pathological methods, however quantitative evaluation of the severity behind myocardial damage is not an easy task. To meet this requirement a reliable interpretation through systematic investigations is necessary which can be achieved by using a wide spectrum of pathophysiological markers. Among these, measurement of biochemical marker has become an important ancillary procedure in determining the cause and time of death[27-29]. A detail study in the distribution pattern of biochemical markers in different body fluids is of great implication in post-mortem diagnosis, since their distribution depends upon the location of tissue damage and release kinetics. Recently, application of biochemical procedures in forensic pathology is gaining momentum, because of sudden death associated with myocardial and ischemic heart disease, which is often difficult to determine morphologically[30-32]. In forensic medicine, there is an urgent need for more sensitive biochemical markers in post-mortem diagnosis of acute myocardial infarction (AMI). Estimation from conventional biochemical markers from serum can only suggests or suspect the associated lesion but it can't be confirmed[33-38]. In such situation biochemical measurement from pericardial fluid is the most important choice in biochemical tests. A comprehensive study involving a spectrum of traumatic death suggests rise in the level of troponins in blood serum and pericardial fluids from various cause of death including hyperthermia, methamphetamine abuse and carbon monoxide poisoning.

In normal clinical practice, a few regular biochemical markers are for the most part utilized for the determination of myocardial infarction (MI) all the more especially the MB isoenzyme of creatine kinase (MBCK) and myoglobin. On the other hand, the specificity of both markers is questionable, since increase in the estimation of MBCK and myoglobin might likewise happen in instances of skeletal muscle damage even without perceivable heart damage[39-41]. In the recent years, measuring cardiac troponins in serum has turned into an entrenched technique for diagnosing intense ischemic myocardial infarction and hence has to a great extent supplanted creatine kinase[42, 43]. Troponin complex comprises of 3 proteins (troponin C, I, and T), which have regulatory function in the sarcomere. Troponin C, is indistinguishable in skeletal muscle and myocardium, yet cardiovascular troponin I and T (cTnI and cTnT) are sort of not quite the same as their partners in skeletal muscle. Troponin for the most part release from injured cardiac myocytes three hours after ischemic damage, and its rise stay rose for up to a few weeks. Studies proposes that its peak concentration can be related with the degree of injury and hence measuring troponin in serum can be an important auxiliary method in examining sudden death[44-46]. In this part the essentialness of measuring heart troponin (cTn) will be talked about in connection with after death instances of intense sudden demise.

Criteria of biomarkers for diagnosis of MI

The criteria for MI suggested in these and different guidelines[42] are focused around the principle that any dependably detected myocardial infarction, if brought about via myocardial ischemia, constitutes a MI. The improvement of more sensitive and specific biomarkers of necrosis, for example, cardiac troponin, has empowered location of quantitatively much smaller area of myocardial damage[47]. Additionally, it is likely that future eras of measures for cardiac troponin will push this utmost significantly lower. All things considered, based on the total confirmation to date, the present rules reflect the predominating accord assumption[43] that any dependably detected elevation of a cardiac troponin is irregular and probably speaks to necrosis. The additional investigation is obliged to figure out if present or future generation of assays for cardiac troponin may detect release of the protein that happens amid reversible injury because of myocardial localized necrosis.

Optimal timing of sample acquisition

The ideal timing of sample acquisition for estimation of biomarkers for the diagnosis of MI gets from both properties of the accessible biomarkers and patient related components, timing and term of indications with respect to presentation and general likelihood of ACS. CK-MB starts to increase within 3–4 h after the onset of myocardial injury and tumbles to typical ranges by 48–72 h. Cardiac troponin increase with a time course like CK-MB yet can stay expanded for up to 4–7 days for cTnI and 10–14 days for cTnT.

Conversely, myoglobin concentrations begin to increase as right on time as 1 h after onset of myocyte damage and comes back to normal inside 12–24 h. In view of this kinetics, the transient ascent of the serum concentration of CK-MB and cardiac troponin regularly does not allow recognition of myocardial necrosis early (1–3 h) and does not help maximal affectability of these markers until 6 or more hours after the onset of MI[48-50]. Precise determination of the timing of symptom onset is focused around patient reporting and is frequently clinically exceptionally difficult[51]. In this manner, blood ought to be acquired from patient for testing at 6–9 h after onset of manifestation to give satisfactory clinical affectability to distinguishing MI. early testing of heart troponin or CK-MB, in combination with myoglobin, may be considered as an approach to increase early detection of infarction and to facilitate rapid initiation of treatment[52, 53]

A perfect biochemical marker for diagnosis and detection of myocardial injury ought to be display in high concentration particularly in myocardium, and ought not be introduce in different tissues, even in trace amounts or under any pathological conditions [54]. Likewise, it ought to be release quickly and totally in light of myocardial injury furthermore ought to continue in plasma for a few hours however not all that long, to give a sufficient time to helpful analysis. The ingenuity for more periods could be of great interest for routine clinical practice yet not in post-mortem diagnosis where markers ought to be of free of impedance as an after effect of post-mortem interval and from contamination caused by adjoining tissue fluids. In post-mortem examination, estimation of markers is imperative in light of the fact that customary histological routines can just suspect the myocardial lesion yet can't be secured[34, 35, 37]. Indeed in specific instances of measurable practice it is hard to diagnose AMI just from anatomic and pathological observation. In such cases wide variety of biochemical determinations in blood, cerebrospinal liquid, vitreous humor, pericardial fluid, and other body fluids can be much helpful in solving forensic related medico legal problems [27]. In such cases complementary diagnostic techniques, such as the determination of biochemical markers in cadaver fluids, take on a special importance.

Recently, cardiac troponins have picked up consideration as a specific marker of myocardial cell injury. European Society of Cardiology and the American College of Cardiology have recently recommended that these proteins ought to favored as specific marker for cardiac injury than the traditional one[55]. Measurement of cardiac troponins has turned into a standout amongst the most imperative research facility tests now days where passing can likewise be conceivable because of intense myocardial damage. The modern troponin assays are more particular for cardiac damage than ischemia injury. Indeed cases like cardiomyocyte necrosis, for example, myocarditis and cardiomyopathies, can likewise be diagnosed in light of rise in the level of serum troponin. Likewise, it has been watched that estimation of cTnT and cTnI is more exact than the routine estimation of CK-MB[56, 57]. So it has been proposed that these troponin can be utilized as a part of post-mortem examination as a qualitative diagnostic test [46]. In any case there ought to be a need of most extreme consideration when patients experiencing renal failure where abnormal amounts of cTnT may present[58]. Then again, there is a general understanding that serum cTnI is a specific marker for myocardial injury and it has been recommended that cTnI immunoreaction in autopsied hearts is a sensitive method which can employ in the diagnosis of early myocardial infarction [59, 60]. In their study on cTnT and cTnI against intense myocardial localized necrosis reasoned that relying upon their level increased from 10% to 45% inside an hour to more than 90% at 8 or more hours. Anyway its specificity starts declining gradually from 87% to 80%, inside 12 hours after the onset of chest pain for cTnT and 95% in cTnI level. Along these lines, cTnI has all the earmarks of being more perfect for the location of myocardial damage[41, 61, 62].

Recently, cardiac troponins have gained attention as a specific marker of myocardial cell injury. European Society of Cardiology and the American College of Cardiology have recently suggested that these proteins should preferred as specific marker for cardiac injury than the classical one [55]. Measurement of cardiac troponins has become one of the most important laboratory tests now days where death can also be possible due to acute myocardial damage. The modern troponin assays are more specific for cardiac damage than ischemia injury. Even cases like cardiomyocyte necrosis, such as myocarditis and cardiomyopathies, can also be diagnosed because of elevation in the level of serum troponin. Also, it has been observed that measurement of cTnT and cTnI is more accurate than the conventional measurement of CK-MB [56, 57].

So it has been suggested that these troponin can be used in autopsy as a qualitative diagnostic test [46]. But there should be a need of utmost care when patients suffering from renal failure where high levels of cTnT may present [58]. However, there is a general agreement that serum cTnI is a specific marker for myocardial injury and it has been suggested that cTnI immunoreaction in autopsied hearts is a sensitive method which can employ in the diagnosis of early myocardial infarction [59,60]. In their study on cTnT and cTnI against acute myocardial infarction concluded that depending on their level increases from 10% to 45% within a hour to more than 90% at 8 or more hours. But its specificity starts declining gradually from 87% to 80%, within 12 hours after the onset of chest pain for cTnT and 95% in cTnI level. Thus, cTnI appears to be more ideal for the detection of myocardial damage[41, 61, 62].

Recently, monoclonal antibodies against cTnI and cTnT have as of now been produced that shows almost no cross-reactivity with their respective skeletal muscle isoforms[54, 63]. Both of these marker give a prevalent specificity in a circumstance where high level of CK-MB is suspected in giving a false positive result[64]. Likewise, a few studies have obviously exhibited that cTnI and cTnT are better than other established biochemical measurement if myocardial damage must be diagnosed in patients with possible concomitant skeletal muscle damage [57]. As per[57] both markers were associated with a very nearly outright clinical affectability however the specificity was insignificantly higher for cTnI.[65] in their finding proposed a preference for cTnI in patients with chronic failure or myopathies, if myocardial damage is suspected. In an alternate careful investigation Adams et al. observed that troponin I in the venous blood especially, was specific for cardiac contusion however its specificity in the pericardium was not as different as in the venous blood[45, 66]. Hence, troponin I has depicted as having a high specificity with ischaemic myocardial injuries and in traumatic myocardial injuries compared with other class of troponin[59]. It has been also observed that during biochemical measurement from pericardial fluid, a statistically significant higher level was obtained in subjects who died from myocardial infarction compared to normal death. However in serum, only cTnI exhibit statistically significant difference with higher value in the subjects, who died from myocardial infarctions. These discrepancies aroused possibly due to their release from different sites[67-69].

Conclusion

In conclusion, based on literature and available evidences we suggest cTnI measurement as one of the useful parameter for measuring the severity of myocardial damage and thus can be implemented in medico-legal autopsy in forensic practice. We, therefore propose cTnI measurement as an essential criterion in patients who died due to sudden acute death. Thus, by using this procedure it will be possible to predict cardiac death with almost 100% accuracy.

Multimarker approach as a future detection method

Clinical studies have demonstrated that the consolidated utilization of myoglobin and a more specific marker of myocardial infarction may be helpful for the early determination of MI[70, 71]. Multimarker strategies that incorporate myoglobin have been indicated to distinguish patients with MI more quickly than laboratory based determination of a single marker[72, 73]. Advances in our understanding of the pathogenesis and results of ACS have animated improvement of new biomarkers and made the opportunity for an extended part of different biomarkers and individualization of treatment[74, 75]. Much evidence demonstrates that a multimarker method, utilizing a pathologically differing set of biomarkers, includes to biomarkers of putrefaction for danger appraisal in ACS[76]. Few studies have inspected procedures incorporating 2 or more markers notwithstanding troponin[75, 77]. Additional research assessing this and other methodologies for consolidating 2 or more pathologically differing biomarkers will clear up the suitable clinical part for such a methodology. All things considered, as new markers and treatments are found, a multimarker standard utilizing a combination of biomarkers for risk evaluation and clinical choice making can possibly enhance results for patients with ACS[76].

Conflict of interest

None declared

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Ethics in histopathology laboratory

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Abstract

Ethics are involved in almost all the phases of comprehensive examination of the patient. Four general principles in medical ethics are also applicable in the field of histopathology, however their implementation poses a great challenge. A pathologist bears the responsibility of patient, colleagues, profession, and society. Provision of a safe, scientifically accurate and complete diagnosis in a reasonable frame of time is the prime ethical duty of a histopathologist. However, a harmonized diagnosis is at times difficult to be produced acceptable for all the stakeholders. The inherent beauty of histopathology i.e. intra-observer and inter-observer variations in comprehending the language of cells may result in a deviated diagnosis at times especially when the second opinion is to be sought as a trend of fashion. This pathologist-pathologist interaction and also the proprietorship of tissue blocks also impart an ethical threat. Legitimating for carrying out additional stains after the diagnosis has been reported and using tissue blocks for research purposes might have some ethical issues involved in which the histopathologists need to unanimously sort out at their earliest.

Keywords: Ethics, histopathology, safe diagnosis.

Introduction

The principles of doing "good" and not doing "harm" are the essence of every code of medical ethics. In recent times, as an aid to decision-making and as a starting point for discussion on medical ethics, four principles have been generally agreed as fundamental. These are:

- *Autonomy*- the right of patients to make decisions on their behalf.
- *Beneficence* - the duty or obligation to act in the best interests of the patient.
- *Non-maleficence* - the duty or obligation to avoid harm to the patient.
- *Justice* embodies concepts of fairness and giving what is rightfully due[1].

At the same time, medical ethics aim to protect patients from abuse that can occur from a person in a position of power. The four general principles in medical ethics are also applicable in the field of Pathology but they are clumsy[2]. The ethical standards of those working in medical laboratories and forensic medical institutions are derived from medical ethics and other codes but incorporate the same principles[1]. The most essential purpose is to ensure that medical profession deserves the trust of the patients.

In the present era of "hi-tech" medicine, upto 70% of medical diagnoses rely on pathology laboratory analyses[3]. Although sustaining high ethical standards remain crucial in both clinical and laboratory practice, yet ethical dilemmas are faced daily by laboratory physicians and ethics do not receive the deserved attention [4].

The comprehensive examination of a patient is divisible into pre-analytic, analytic and post-analytic phases:
The pre analytical phase includes:

1. Deciding to organize the examination,
2. Informing the patient and gaining consent,
3. Ordering the examination and preparing the patient, and
4. Collecting the specimen.

The analytic phase includes:

5. Preparing,
6. Storing the sample,
7. Analyzing the results, and
8. Verifying the results.

The post-analytic stage includes:

9. Reporting the results,
10. Interpreting the results,
11. Informing the results to patients or relatives, and
12. Applying the results to the patient care [5].

An institutional laboratory attached with a teaching hospital is at least involved in some of the pre-analytic phase (sub-phases 2, 3 & 4), in almost all the sub-phases of analytic phase, and most of the sub-phases of post-analytic phase (i.e. 9, 10, 11 & 12 specifically in the clinic-pathological conferences and morbidity and mortality meetings). Although, smaller in number but higher in magnitude, the ethical problems were mentioned in almost every phase and sub-phase of comprehensive examination [5], the problems became magnified while considering the rights of deceased and patients[6, 7].

There are three main groups to whom pathologists owe their responsibilities; the p*atients* to whom the pathologists are accountable for the quality and integrity of the service they provide, the *Colleagues and the profession* to whom the pathologist should strive to uphold the dignity and respect of their profession and maintain a reputation of honesty, integrity and reliability, and the *Society* for which pathologist have a responsibility to contribute for its general well-being[2].

Chinoy[8] explained in her article that following issues should be considered as regards to ethics in histopathology laboratory:

- Safe, scientifically accurate and complete histo-pathological diagnosis in a reasonable time frame.
- Propriety of tissue samples and blocks.
- Medical audits specifically aimed at the pathologist.
- The pathologist-pathologist relationship.

Serafimov used the term of shared-decision making for patients instead of medical audits specifically aimed at the pathologist[2]. How does a safe diagnosis come under the preview of discussion on ethics? This is because even the most experienced pathologist is human, and cannot claim 100% accuracy for every diagnosis. Histopathology is basically learning the language of cells, interpreting shapes, sizes and architectural patterns of tissues within a given specific clinical context[2], an issue poorly understood by the clinicians. A difficult case is similar to interpreting a semi abstract work of art. Even a different diagnosis may be encountered if the case is reviewed by the same pathologist sometimes after. This inter-observer and intra-observer variation, which is also considered as the beauty of histopathology, is best explained by Elsheikh et al (2008) in their article on inter-observer and intra-observer variations amongst experts in the diagnosis of thyroid follicular lesion with borderline nuclear features of papillary carcinoma[9]. However, every case in histopathology is not that much challenging and in almost 95% of cases a harmonized diagnosis can be established. Problems are mostly encountered in borderline cases, rare diseases, poorly processed samples or in the absence of complete clinical data[2]. I personally know a renowned histopathologist who, in the case of non-provision of history, gives the remarks of “no history no diagnosis”. Safe diagnosis is not only beneficial for the patients, but it should also ensure the safety of histopathologist as well. Committed pathologists observing this trend could end up as practicing ‘defensive pathology’, unwilling to commit themselves freely in their histopathology reports[5].

Although there is no direct contact with patients, the “faceless” laboratory physician’s first and foremost duty is to act in the interest of the “faceless” patient who is often “just a number.” The laboratory physician does have intimate knowledge of at least a part of the patient-the specimen[10] and an unusual three way contact is made between clinician, physician and the pathologist[4].

Obviously the laboratory physician may have many interests, including personal, intellectual, financial and professional, that can sometimes clash with patients' interests but concerns for the interests of patients should always prevail over other interest[11].

The histopathologist should have the right to process diseased tissue removed during surgery in any way to obtain diagnostic information for future therapeutic decisions. However, the tissue remains the patients' property. The histopathological report is a confidential document which should be relayed only to the clinicians concerned and to the patients. This can become a controversial issue in today's' society where patients go "shopping" for doctor's opinion. They may wish to carry the tissue sample to several different histopathologists. Nevertheless, the pathologist cannot deny the patient the right to tissue removed for diagnostic purposes, or for information based on their examination[2]. On the other hand, departments in large institutions may argue that material obtained for diagnostic purposes should be stored and preserved for future research. This should be done only with the permission of the patient. Obviously a majority of the patients will agree to such storage, if their pathologists take the time to explain the need for such researches[4].

Legitimacy for carrying out tests for which consent has not been obtained, or in other way to use stored tissue samples (including their export) without the informed consent of their owners, is also questioned by some authors[4]. This is a common practice observed at histopathology laboratory to retrieve the tissue blocks, review the diagnoses, make fresh slides and use additional sometimes newer stains. Are ethics involved in the entire scenario?

Second opinion of histopathology cases is not only famous amongst the patients but many physicians do feel comfortable while doing so. However, in this regard, the first pathologist should not be kept in dark, and his/her assistance should be made mandatory to facilitate the process. Histopathologists have a right to their own opinions. However, divergent or contradictory diagnoses can create considerable apprehension for both the patients and the treating clinicians. Sometimes, the matter cannot be resolved without a third or even a fourth opinion. In such cases, clinicians sometimes opt that report which best matches their own clinical and/or provisional diagnosis[5]. The second, third or fourth pathologist should refrain from making any comments that should be considered as acceptance of the criticism[12].

Conclusion

Although histopathology laboratory is not in direct contact with the patient, the ethics needs to be followed there as well. There are many more ethical issues that may arise in the setting of such laboratories. It is the highest time for histopathologists to sit together and determine their own guidelines to resolve the ethical issues.

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Victimology from a police perspective

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Abstract

Victimology is the study of the victims of crime. This paper studies Victimology from a former police officer's point of view using criminology. Crimes are broken down by intent versus non-intent by categorizing the type of crime the victim encounters. These type of crimes discussed include crimes of passion, crimes of occurrence, and crimes of accidents. Crimes of passion involve heavy emotion outweighing logic and reasoning. Crimes of occurrence are crimes that involve victims being in the right place at the right time. Victims of crimes of occurrence do not specifically know the suspect. Finally, crimes of accidents include victims unintentionally being injured or killed unintentionally and by accident.

Keywords: Crimes of passion, occurrence, accidents, victimology.

Introduction

Much research has been done in America to determine if certain people or circumstances help predict if he or she will become a victim or not. The answer is yes in some cases certain people like prostitutes, mentally diminished, disabled, children, young, gender, or elderly persons become victims of crime at a higher rate. According to Lewis and Maxfield (1980), certain people have higher incidents of Victimology based on the neighborhoods social conditions[1].

However, circumstances certainly play a part of the crime Victimology too. Circumstances include time of day, location, type of crime, type of weapon used, availability of witnesses, lighting, group or individual activity, and in the life of the suspect and victim etc.[2]. Circumstances contribute to the extent of violence of a crime to the victim. Violent crimes occur in most cities and often involve random victims.

As a police officer in the middle size city of Billings, Montana in the United States, I responded to crimes of passion, crimes of circumstances, and crimes of accidents. Crimes of passion often involved intimate partners both from heterosexual and homosexual partners as well as with immediate family members and shirt tail relatives. Victims involved children, adults, mentally ill, disabled, elderly, destitute, and affluent.

The following paragraphs cover crimes of passion, crimes of circumstance, and crimes of accidents. I provide an example publicized by the media as well as a person experience from years working on the street as a police officer. As evident, this is not an absolute description of Victimology but rather a street perspective from a former law enforcement officer.

Discussion

Victimology is a topic that has been covered extensively by criminologists for years. One main theme with Victimology is that people become victims of crime every second of every day in every continent across the world. One main idea to remember is that the victim is never responsible for becoming a victim of a crime.

Yes, certain occupations or predicaments contribute to a higher rate of crimes against a particular group of people, but the group or individual is not responsible for the crime. Victims do not deserve

the acts of violence nor crimes against them because someone else views him or her with judging eyes. Therefore, it is inherent those who study Victimology understand the types of crime to better prosecute offenders and further develop legislation for the prosecution of crimes.

Crimes of Passion

Crimes of passion occur as a result of an imbalance between logic and emotions. Crimes of passion do not mitigate the responsibility, but rather establish a meaning behind the crime. Emotion is the key distracter that psychologically distorts the trigger and often results in crimes of violence.

A famous crime of passion that comes to mind is the O.J. Simpson murders of Nicole Simpson and Ronald Goldman. If one were to read the actual court transcripts from both the criminal and civil trial evidence would clearly illustrate the suspect actions leading up to the murder. The transcripts clearly show a jealous husband catching his estranged wife with another man[3]. Crimes of passion in domestic violence situations show stalking behavior, jealous behavior, verbal or written threats, followed up by violent actions.

I worked a case where the wife was the breadwinner of the family. When the divorce was signed by the court, the house was awarded to the wife. The ex-husband had a sense of entitlement to the property. The ex-husband had controlling issues and did not like that his ex-wife had moved out of the city to an unknown location. The ex-husband called all the friends, sent threatening letters to family members, showed up at the usual locations, and kept trying to locate the wife.

When it came time for the wife to move personal property out of the residence, the ex-husband showed up and sliced the tires of the prospective buyer and the brother's vehicle immobilizing the two vehicles. The ex-husband then drank enough alcohol before returning to the residence and shooting the brother through a window. The ex-husband shot at the wife but missed and was apprehended after a short police pursuit and prosecuted. Next, is a description of crimes of circumstance.

Crimes of Circumstance

Crimes of circumstance are crimes that occur when people are in the right place at the right time for the crime to occur. These types of crimes catch the victim off guard. There is a sense of misunderstanding as well as shock that the victim feels. The victim feels if only I would not have gone to the store, to the bank, to the movie, to a place where the crime occurred. The victims' "what if" themselves and their actions often wondering "why me"?

One famous case that comes to mind is the case of the Aurora Colorado movie theater shooting[4]. Who would think that just going to the opening of the movie "The Dark Knight Rising" would change his or her life and the life of others? Murderer James Holmes chose to randomly kill 12 innocent people just because of their enthusiasm for a movie. Crimes of occurrence occur nearly every second of every day across the world.

I once worked a case that a middle-age mentally diminished woman living in a nursing home. She was unable to care for herself, so her parents put her in a nursing home. She decided to get cat food for her cat at around 0230am hours one fall night. She walked to the grocery store just two blocks away then returned home. She was asleep when the suspect broke into her apartment through a window, held her a knife point, and raped her. The suspect was caught and prosecuted, but the trauma left the already mentally diminished woman a prisoner of her own apartment.

Crimes of occurrence can cripple the victim with a hyper sense of being scared, paranoid, and trapped. Crimes of occurrence can make the victim unable to move on because the victim is stuck in a loop of remembering the act of violence over and over again. A sense of hopelessness prevails when the suspect is not caught or prosecuted. Next, a brief description of crimes of accident follows.

Crimes of Accident

This type of crime involves unintended accidents in which a person becomes a victim of a crime. Examples of crimes of accident are traffic accidents where persons are injured or killed, unintentional actions that are criminal, and any other crime that lacks intent.

Sometimes accidents happen. For instance, a young person races a car with another person for the fun of competition, but crashes from inexperience driving. The intent was to have fun with the friends who are

encouraging him or her to race. However, the ignorance of the Newton's laws of motion that states for every action there is an equal and opposite reaction[5]. Another example of a crime of accident may be when a family goes boating on the river, the boat capsizes, and a child drowns. The victim is in the right place at the right time for the crime to occur.

One highly publicized crime of accident involved Princess Diana[6]. She was in a chauffeur driven car as a passenger being chased by paparazzi for photographs. She died in a car crash, which I may add was a legionary loss not just for England but for the world.

One case that I worked involved a healthy baby being born to two mentally challenged parents. The baby caught a cold, so the parents took the baby to the doctor. The doctor suggested to the parents to take the baby home and to place the baby in the bathroom. The parents were instructed to turn on the hot water from the shower with the door closed to create a humidifier effect so that the baby could breathe a little better. The parents understood the instructions literally but without common sense. The parents took the baby and put the baby in a bassinette and placed the baby under the hot shower water. Consequently, the baby died but the mentally challenged parents were not charged.

Crimes of accidents occur when a series of actions cause an unintended reaction. The specific intent to conduct a crime is not part of the modus operandi. Some would argue that a suspect's actions always cause intent, but at times a bad decision that was made at a split second occurs. To this extent I must offer a disclaimer as follows.

Disclaimer

One must clearly understand that the majority of crimes involve alcohol and or drugs in America. Being under the influence of alcohol or drugs is not a defense for one's actions. Rather just the opposite. Being under the influence can be deemed a mitigating circumstance thus enhancing the punishment. For the most part people clearly know when he or she is under the influence and that the decision-making process is affected, but often people use this liquid courage to proceed against the odds.

Statistically, when people are under the influence of alcohol or drugs the chances of committing a crime go up drastically. Offenses range from minor to major and change not only the offender's life but the life of everyone involved. Living victims replay the crimes over and over, while when sober the offender has to live with the knowing that he or she injured or killed someone. The summary on this brief Victimology description from a former police officer follows.

Conclusion

Victimology may be described in a variety of ways with a plethora of adjectives, but I narrow it down to crimes of passion, crimes of circumstance, and crimes of accident. Crimes of passion involve emotion taking over logic and reasoning. Crimes of passion always involve the suspect knowing the victim. Crimes of passion often show fits of rage by the sheer violence of the encounter.

Crimes of circumstance are the crimes that involve non-target persons. The victim is picked by chance rather than on purpose. Crimes of circumstance often involve strangers. Crimes of circumstance involve innocent people that are simply in the path of the storm.

Finally, crimes of accidents can involve known victims and unknown victims. Crimes of accidents occur because the suspect makes some bad decision or decisions that set off a chain reaction that leads to a violent unintended end. Like crimes of circumstance, crimes of accidents also play a toll on the victim because the victim often replays the crime in his or her head wondering "why me."

The final ingredient in determining Victimology is intent. The intent of the crime helps distinguish if the victim was targeted purposefully or targeted just by chance of circumstance. Intent is determined by prosecution whereas non-intent is determined by the defense. If the crime occurred by chance, then the sentencing phase for the suspect will be reduced. This interpretation is a view of Victimology from one former police officer's perspective.

Conflict of interest

None declared

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Dark death – an interesting case report

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Abstract

Suicide (Latin *suicidium*, from *suicaedere*, "to kill oneself") is the act of intentionally causing one's own death. Suicide is often committed out of despair, the cause of which is frequently attributed to a mental disorder such as depression, bipolar disorder, schizophrenia, borderline personality disorder, alcoholism, or drug abuse. The act of taking one's life for the benefit of others is known as altruistic suicide. Literature has very less reference regarding the suicidal approach among blind persons.

Here we report an interesting case of a teenage boy who was suffering from bilateral Heredo-macular degeneration and was completely blind from birth. He committed suicide by hanging, in his living room. The method by which he chose to end his life raised many eyebrows. Here, we unfold the story of this teenager who ended his life for the benefit of his family members.

Keywords: Suicide, blind person, hanging.

Introduction

An estimated 180 million people worldwide are visually disabled, of whom nearly 45 million are blind, and among these, four out of five live in developing countries. Prevalence varies between countries, from 0.2% or less in developed countries to more than 1% in some sub-Saharan countries[1]. In India, blindness is one of the most significant social problems. The principle cause of blindness in India is cataract, responsible for about 62.6% of all cases[2].

Stargardt disease (also referred to as fundus flavimaculatus or heredomacular degeneration) is an inherited condition that usually causes gradual bilateral decrease in vision in early childhood or teenage years, which may remain stable for the rest of life. This progressive vision loss usually reaches to the point of legal blindness [3]. Several genes (STGD1, STGD3and STGD4) are associated with this disorder. The main symptom of Stargardt disease is loss of visual acuity. Vision is most noticeably impaired when the macula is damaged. No treatment is available for Stargardt's disease as of now[3, 4].

Case details

A case was brought to the Department of Forensic Medicine and Toxicology, Sapthagiri Institute of Medical Sciences and Research Centre on 03/03/2014. As per the police Inquest, a 17yr old boy was found dead in his living room on 02/03/2014. The boy was blind since birth.

Autopsy findings: Externally**,** an oblique incomplete faint Ligature mark measuring 21cm × 4.5cm (Fig 1). Dry salivary stains present along the right angle of the mouth. Other features of hanging were present.

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Fig 1: Ligature mark

Fig 2: Ligature material

Ligature material: As furnished by the police, the ligature material is a blue and cream coloured floral design synthetic saree with multiple knots at different levels (Fig 2). On twisting, it corresponds to the ligature mark and can withstand the weight of the body.

Internally, the structures underneath the ligature mark were pale and glistening (Fig 3). Hyoid bone & thyroid cartilage were intact.

Respiratory System: Both lungs were enlarged and congested. Surface showed petechiae. Cut section exuded dark red fluid.

*Cardio-vascular system:*Petechiae present over the surface. Coronaries intact.

Hepato-biliary &uro-genital systems were normal. *Cranial cavity* was intact with petechiae in the white matter of the Brain.

FSL Report(FSL / TS / 843 / 2014): Residues of Volatile poisons, Pesticides, Barbiturates, Benzodiazepine group of drugs, Toxic metal ions and anions were not detected in any of the above stated articles.

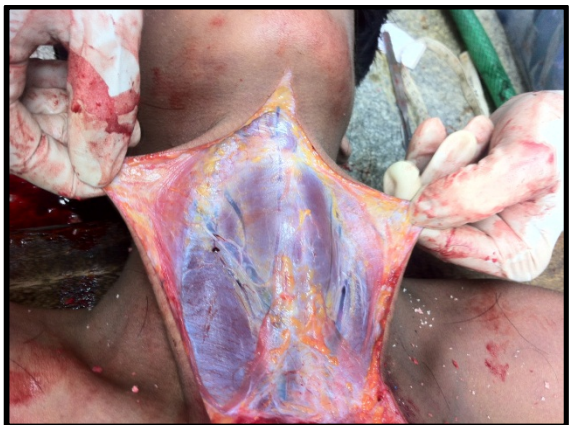
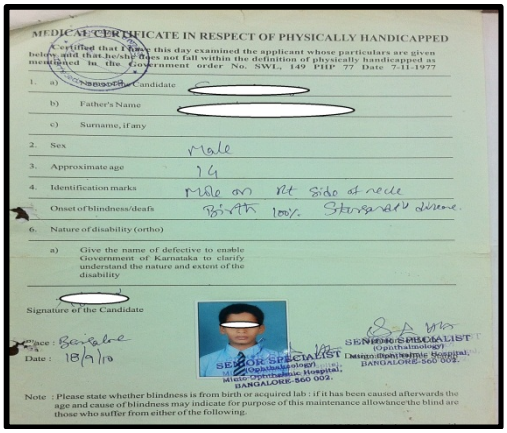


Fig 3: Structures underneath the ligature mark.

Histo-Pathological Report (M.L.C A - 5/14): Kidney showed features of Congestion. Brain, Lungs, Heart, Coronaries, Liver, Spleen were Unremarkable.
Cause of Death: On perusal of Autopsy Findings, Histopathology Report and F.S.L Report, Opinion as to the cause of death was due to Asphyxia as a result of Hanging.


MEDICAL CERTIFICATE IN RESPECT OF PHYSICALLY HANDICAPPED

Certified that I have this day examined the applicant whose particulars are given below, and that he/she does not fall within the definition of physically handicapped as mentioned in the Government order No. SWL 149 PHP 77 Date 7-11-1977

1. a) Name of Candidate
b) Father's Name
c) Surname, if any
2. Sex — Male
3. Approximate age — 14
4. Identification marks — Mole on Rt side of neck
5. Onset of blindness/deafn — Birth 100% Strabismus Divergens
6. Nature of disability (ortho)
a) Give the name of defective to enable Government of Karnataka to clarify understand the nature and extent of the disability

Signature of the Candidate

Place : Bangalore
Date : 18/9/14

SENIOR SPECIALIST (Ophthalmology) Mission Ophthalmic Hospital, BANGALORE-560 002.

Note : Please state whether blindness is from birth or acquired lab ; if it has been caused afterwards the age and cause of blindness may indicate for purpose of this maintenance allowance the blind are those who suffer from either of the following.

Fig 4: Certificate showing blindness

Discussion

Information from family and friends revealed that,

- The deceased was completely blind from birth (Fig 4).
- He had passed S.S.L.C(10th Std) with 71.68%.
- He used to tell his friends that if he commited suicide, his family would be given a lot of financial support by the Government.
- He had attempted to hang himself several times in the room in which he was staying.

Here, though the boy was completely blind from birth, he had an orientation towards society due to his primary schooling. Since the boy always stayed in a small room, he knew every single detail about the room. He had attempted to hang himself several times before this final act. Since he was getting financial allowances from the government, he used to tell his friends that if he committed suicide, his family would receive a lump sum amount of money as compensation from the government and they would be free from financial hurdles in the future. Hence this type has been termed 'Altruistic suicide'.

In a comparative study of two populations of young males with sensory deprivation, for instance, Abolfotouh and Telmesani reported depressive symptoms to be more common among the blind than the deaf[5]. Authors such as Cholden[6], Blank[7] and Shulz[8] have linked the response to blindness, to a grief reaction, in which patients mourn the loss of the sight of self. In some cases, this reaction is complicated to the point of precipitating suicide.

Very few literatures are there regarding completely blind people committing suicide by hanging. An article in Modern Ghana newspaper[9] reported that a 56-year-old blind man who was being ejected from his rented apartment, apparently for his inability to settle his rent, allegedly committed suicide by hanging at Official Town, a suburb of Ashaiman[9]. An article in mailonline[6] reported that, a deaf and blind man, 63, hanged himself in grief, yards from the body of his wife after she died from a heart attack. The person was deaf from birth but eventually developed blindness later after suffering from worsening tunnel vision. He had attempted to hang himself 24yrs ago after being told that he was going blind[10].

Conclusion

Seeing the surrounding world is undoubtedly a wonderful experience. One cannot imagine a world without vision. The present case clearly stresses the need for greater sensitization to the problem, together with the establishment of guidelines for preventing the onset of secondary depression and suicidal behavior in blind persons.

Conflict of interest

None declared

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Y-Chromosome DNA identification of aspermic male offender from vaginal swab of victim

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Abstract

Identification of the offender from spermatozoa and blood is the most often sought biological evidence in the examination of rape victims. Forensic finding of the spermatozoa plays an important role to confirm the recent episode of sexual intercourse. Problems arise in cases of digital penetration and vasectomized males. Criminals are getting smarter now days, they are using condom to commit rapes or ejaculate away from the body of victim. In such cases no sperm cells are found and conventional STR testing yields only a female profile. This study demonstrates the presence of the male epithelial cells in the vaginal tract as available proof of coitus. In many circumstances the application of PCR-based DNA typing methods results in the failure to amplify the minor (e.g., male) component of DNA mixtures due to competition with alleles from the major (e.g., female) component. In this study DNA profile from the aspermic semen, vaginal swab and a control sample of a vasectomized male was obtained for all 16 Y-STR loci namely DYS392, DYS390, DYS385 a/b, DYS393, DYS3891, DYS38911, DYS391, DYS19, DYS439, DYS438, residing on the Y-chromosome and Amelogenin to help the investigating agencies to prove that a male was involved in the offence and further investigation was needed.

Keywords: Forensic Science, Short Tandem Repeat, Y-Chromosome, DNA profiling, rape cases.

Introduction

Y-STR testing has played a critical role in sexual assault cases. In 1997, the U.S. Department of Justice estimated that 99% of the offenders of sexual assault incidents were male, thus the ability of forensic examiner to obtain male DNA profiles from sexual assault swabs. Evidence samples can play a critical role in prosecuting these offenders. In many sexual assault samples, such as vaginal swabs, the amount of female DNA overwhelms the quantity of male DNA present. Male DNA can appear in the epithelial fraction due to premature lysis of semen or male epithelial cells present in the ejaculate[1]. In these situations, the true genotype of the male suspect can be masked by the female victim's profile, making interpretation difficult. The interpretational problems can be compounded in the absence of reference sample(s), such as in non-suspect sexual assault casework. The absence of spermatozoa can also make analysis more challenging in some instances. Aspermic samples are

not even tested due to a potentially low ratio of male: female DNA. The present study utilized a Y-STR 16 STR to determine the efficacy of Y-chromosome STRs in profiling male DNA from non-suspect sexual assault samples lacking visually identifiable spermatozoa[2]. Y-STRs not only offer the potential to improve the chances of obtaining DNA profiles of male perpetrators of sexual assault, it could also be useful to analysis evidence in cold cases, where conventional DNA methods of the time had failed. In a case in 1998, Y-STRs were profiled from 25-year-old evidence collected from two rape cases in Japan, in response to a retrial request by a condemned criminal. The Y-STR alleles from the vaginal swabs analyzed were found to be identical to those of the accused, confirming the original.

Materials and Methods

Selection of Specimens

This study is done from a sample collected from cervico-vaginal area of the victim. A control sample was taken from the ejaculate of a vasectomized volunteer.

Extraction and of DNA: DNA was extracted from aliquots (200 ml.) of concentrated semen (Vasectomized semen sample) using phenol chloroform extraction method. The total human DNA was quantified by slot blot hybridization using a quanti blot TM kit by ADB system. Reference blood sample from the donor were not run since the semen sample collected were from donor.

Amplification: The Y-Filer amplification kit is used for identification of Vasectomized sample. Each group of sample for amplification included a positive control (2-5 mg of male DNA, ATCC = 4514 and negative control 2-5 mg. of female DNA, ATCC = 4551). The 9700 thermal cycler (ADB) system was used for each amplification reaction. The amplification condition were 95º C for 10 min. 30 cycles of 94º C for 30 Sec, 59º C for 1 min. 70º C for 1 min, 60º C for 60min & 40º C until the sample were removed from the thermal cycler.

Analysis of amplified product on the 3100 genetic analyzer

One microlitre of the PCR product or control was added to 9.5 u/ml Hi-Di formamide containing 0.6 u/ml. gene scan – 500 (LIZ) size standards. The samples were denatured at 95º C for 3 min. using the 9700 thermal cycler. Denatured products were analyzed on the 3100 genetic analyzer using performance optimized polymer 4 (POP-4), filter-set, and an injection time of 5s. The run time was 26 min (the time necessary to consistently elute the 450 base pair size, standard peak I GS 500 ROX). A matrix file generated by using the matrix standard FAM, ROX and TAMRA were used. The allele fragments in a sample with reference to alleles in allelic ladder were used. The macro first provides allele designation to all allele in the allelic ladder based on their sizes. The size of each allele fragment in a sample is then compared with the size of designated alleles at each corresponding locus and the sample allele is labeled with the appropriate genotype.

Results

A total number of allele were identified in 16 locus and allele frequency distribution of Y-STR loci from vasectomized person are described below and the results for the 16 Y-chromosome polymorphic STRs *loci* are shown in Table 1. Alleles were confirmed by Genotyping. There were 6 types of allele no.13 to18 present in (B_DYS456)15 , 4 types of allele no.12 to 15 present in (B_DYS389I), 6 types of allele no. 21 to 26 present in (B_DYS390), 6 types of allele no. 27 to 32 present in (B_DYS389II) respectively. It can be seen that the DNA profiles obtained for the male and female fractions from the vaginal Swab correspond to those from the suspect and victim, respectively. Allele size of all vasectomized semen sample and high level of Y-STR diversity was noted. More interesting haplotype result comes from locus (G_DYS385), locus (Y_DYS635) as well as locus (Y_DYS392) in which haplotype duplication observed. Means more than two alleles come together in Table.2

Discussion

In vaginal swabs, amplification made it possible to detect the Y-chromosome STR, whereas absence of spermatozoa in semen sample taken from vasectomized male donor can be explained by a number of factors including penetration without ejaculation, an aspermic assailant, a non penile penetration, or a prolonged post-coital interval. In this regard, vaginal inflammation, salivary enzymes and anal bacteria accelerate the sperm cell lysis. The interval between intercourse and the sampling is usually only for 3 days.. This well known fact often leads the doctors of the forensic unit not to take swabs beyond three days, because sperms are found in vaginal swab up to 3 days confirmed by

Table1: Individual Y-STR allele size of aspermic male semen sample.
(Value observed genotype in semen sample)
Locus Samples included vaginal swab and Reference Sample

Locus	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
B_DYS456	17	17	16	16	16	15	15	16	15	16
B_DYS3891	12	13	13	12	15	12	13	15	13	12
B_DYS390	23	24	21	23	24	25	21	25	22	23
B_DYS38911	30	28	27	30	32	31	30	32	27	31

Table 2. DNA observed more than one copies of allele and confirmed by electropherogram.

S.Nr	Y-STR Locus	Allele Observed	Repeat Unit	Genotype Range
1	B-DYS456	4	13-18	13-18
2	B-DYS3891	5	12-15	10-15
3	B-DYS390	4	21-26	18-27
4	B-DYS38911	4	27-32	24-34

- Amplification of Y-STR loci provides critical information during analysis of male female mixture sample such as rape case[3]**.** Analysis of mixture sample from rape cases, typically involve differential extraction of sperm cell followed by evaluation of autosomal STR marker. They were two allele types in some haplotype due to the duplicated tandem repeat structure on this locus. The present study reveals that the duplication of Y-STR loci verify with Y-filer amplification kit.

electropherograms allele no[4]**.** It should be pointed out that in this case, the male DNA will be obtained from “epithelial fraction”, which the one is obtained after mild protease digestion. Altogether, this suggests that vasectomized sexual assault swabs potentially contain enough DNA (0.5-2 ng) for profiling the male component using Y-chromosome specific loci. Neat ejaculates from vasectomized males were typed at DYS-19, 389 I & II, 390, 391, 392, and 393 using amplification kits on an ABI Prism®. However, the primers and amplification conditions in this study yielded a non-specific DYS391-related peaks with high ratios of non-Y

Table 3: Observed allele in female, vaginal swab and male profile

S. Nr.	Locus	Female	Vaginal Swab	Male
1	D851179	11,16	11,14	14,16
2	D21311	28,30,24	28,30,29	28,29
3	D75820	8,10,12	8,11	8,11
4	CSF190	11,12	11,12,14	12,14
5	D351358	14,15,16	14,16	14,16
6	THOI	6,9	6,9,10	9,10
7	D135317	11,13,12	11,13	11,13
8	D165539	11,12,13	9,11,12	9,11
9	D2S1338	18,20	18,20,23	18,23
10	D19S433	12,14,	12,14.2	14.14.2
11	VWA	15,17,18	15,17	15,18
12	TPOX	8,9,10	9,10	9,10
13	D18S51	12,14,13	12,14	12,14
14	D5S818	11,13,12	11,12,13	11,13
15	FGA	20,26	20,24,26	24,26
16	AMEL	X	XY	XY

(female) DNA. Preliminary results indicate that post-coital vaginal swabs (with Vasectomized male) can be readily typed with this Y-filer electropherograms no. and result of Y-specific method for establishing an upper limit to the concentration of Y-chromosome DNA is post-coital mixtures would be useful, but the confirmation of result in Aspermic ejaculate sample from vasectomized male are comparable with autosomal STR marker analysis, because autosomal or identifiler analysis reveal only the female DNA profile. The impetus for this study was the knowledge that male cells are present in the cervicovaginal only for 3 days after rape or sexual assault by Vasectomized donor. (Table: 3)

Conclusion

The result shows that Y-chromosome analysis provides evidence of the presence of male cells in alleged female victims of sexual assault even when no sperms are detected. This is useful for non-penile penetration as well. The method shows the feasibility of haplotype determination on swabs initially characterized as 'negative' and confirmed by electropherogram allele no. implying transfer of epithelial cells form male to female and vice versa. This study also shows a way to future confirmation. In rape case where the suspect is arrested soon after the crime by police officer as it is known that cells shed from a female during sexual intercourse can be retrieved from the penis of suspect within a 48 hrs of post coital period. The suspect penile swabs can be used as potential source of DNA evidence. The results obtained from this study will form concrete base for further trials.

Conflict of interest

None declared

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Responsibility for deaths of mothers in sterilization camps

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Abstract

In developing countries like India, population explosion is a major problem. Without population control, economic growth becomes difficult. To execute family planning policy successfully, Government takes the help of doctors. Doctors are given a target of completing a given number of tubal ligations in a given geographical area in a given time. Doctors could achieve the target with the help of paramedical staff. A tragedy happened in one of the states of India, where in a laparoscopic ligation camp, 13 mothers lost their lives. As a face saving measure doctor was arrested. It is against the ruling of Supreme Court of India to arrest a doctor without establishing prima facia. The doctor was not at fault for the death of the patients. The death was due to spurious toxic drugs brought by the Government agencies. Doctor was charged as per Indian Penal Code for causing death due to rash and negligent act. Technically doctor had no hand in causing death. Ironically, the director of the pharmaceutical company, who sold the drugs, was also arrested with much milder charges. In this tricky incidence who is responsible for the loss of life of 13 mothers? Was it the government, the doctor or the greedy owner of pharmaceutical company, who sold toxic drugs to satisfy his greed disregarding life?

Keywords: Product liability, medical mal-occurrence

Introduction

In India, tubal ligation or tubectomies remains the treatment of choice for family planning. Mothers are motivated for ligation by money. Money is dished out right from the surgeon conducting the operation, to the individual on whom ligation is conducted upon. Mass ligation is conducted in camps, where Laparoscopic ligation is done on many patients on a single sitting. Expert gynecologists, who are well qualified, well trained, and practice in big hospitals of city, conduct this kind of operation. They come to the designated camp on the day as scheduled. Local motivators would have collected maximum number of possible potential patients for operation. In these camps, temporary infrastructures are created for the operation in terms of, Operation Theater and wards. These camps also have adequate antibiotics, intra venous fluids and items required for laparoscopic tubal ligation. Since the patients can go back to home and work on the same day, response is

good. Surgeon can do many operations on a single sitting, thereby the financial cost and administrative effort is reduced. It is also encouraged by the Government. The Surgeon, in question, of the incident where 13 mothers lost live, had conducted more than fifty thousand laparoscopic tubectomies and had been awarded by the Government for record surgeries. On analyzing expenditure on family planning, it is pointed out in the year 2013-14, 85% of the budget for family planning in this state of Chhattisgarh was spent on incentives for women while 1.3% was spent on equipments, transport, awareness campaign and staff expense 1.5% in spacing methods like oral pills and condoms[1].

Botched tubectomies at Government camp in Chhattisgarh killed 13 ladies. 83 operations were done in just 3.5 hours. Bungled sterilization at a Government health camp in the district of Chhattisgarh triggered the worst ever medical tragedy in the state, as 13 woman died, seven were battling for life and 40 were in shock and trauma triggered with loss of blood. As many as 83 tubectomies were preformed in three and half hours, with one doctor and his attendant spending on an average two minutes per surgery. The surgeries began at 1.30 pm on Saturday and lasted till 5pm. Dr AK (Name changed) conducted the surgeries with just one laparoscopy machine. FIR has been filed against the doctor. Most of the women complained of severe abdominal pain and had to be admitted to hospital on Sunday, and the fatality occurred in Monday morning. Ten more women had died by Tuesday[2].

A preliminary report of an inquiry committee probing botched sterilization in Chhattisgarh had reveled that medicines given to the victims were contaminated with zinc phosphide, a rodent killing chemical. This could have lead to the death of 13 women… 'zinc phosphide reacts with water and stomach juices to release phosphine gas which enter the blood stream and adversely affect lungs, heart, liver, kidneys, heart and central nervous system. Police had arrested Mahavar Pharma directors. These firms had manufacturing licenses for drugs, but lacked required facilities. Officials said these companies were buying medicine from, other sources and packing under their own name. A nexus between health department officials and manufacturers was not being ruled out[3].

Drug manufacturer Mahavar Pharma, suspected of churning out rodenticide-laced medicines distributed to the victims of botched sterilization in Chhattisgarh, had faced a government ban on its products in the past but continued to supply the medicine[4].

Discussion

Following death of 13 mothers for tubectomies at Government camp in Chhattisgarh done in just 3.5 hours with 83 operations the surgeon had been severely criticized. He is now termed as a "Killer Doctor", "Death Doctor ", "Butcher of Bilaspur" and "Merchant of Death". His work is viewed as a terrorist attack like bombing, as a major health disaster which is worse than any heinous crime. His trial is done by media. Charges have been framed by police against him He is charged with Sec 304A of Indian Penal Code[5] which deals with criminal negligence "Whoever causes the death of any person by doing any rash or negligent act not amounting to culpable homicide shall be punished with imprisonment up to 2 years with/ without fine[6]" The surgeon who performed the surgeries is a renowned surgeon of great repute. .He has done more than fifty thousand laparoscopic tubectomies and had been awarded by the Government for record surgeries[5]. On post mortem there was no evidence for defective surgery or evidence of septicemia. There was no evidence of negligence. The doctor was suspended to cover-up and to divert media attention.

Since no evidence of negligence was found, the State to cover itself up was planning to punish the doctor for "violating standard protocols" as to how with single instrument he crossed limits of capacity. Single handedly 4 minutes to do surgery and get ready with the same instrument for next surgery. Also the standards for female and male Sterilization services, as laid down by Ministry of Health and Family Welfare, Government of India in 2006, it recommends soaking for 20 minutes in a solution containing 2% glutaraldehyde for laparoscope

State Government has constituted single-member probe commission to investigate the case of sterilization surgery camps in Chhattisgarh, where 13 women died and several fell critically ill after undergoing surgery. Strangely the terms of reference for the Judicial Enquiry does not mention about fixing the responsibility on purchasing drugs from the pharmaceutical company.

"As per the notification, single-member probe commission has been constituted and Retired District and Session Judge, has been entrusted with the responsibility of investigation. Commission will submit its report to State Government within three months from the date on which this notification was published…. Commission will investigation the case on following points of public importance: -

1. Was the standard protocol followed in these camps?
2. What circumstances led to this incident?
3. Were the medicines used in these camps were of standard quality?
4. Who were the ones accountable for this incident?
5. What measures could be taken to avoid recurrence of such incidences?
6. Suggestions regarding Gender Equality in Family Welfare Programs of state.
7. Probing on the points, which Commission was considered to be of public importance. State Government had formed this Commission for special probe of public importance, by exercising its powers conferred under Section-3 of Judicial Commission Act (60 of 1952). Commission may take help from any organization/expert while investigating on technical subjects/points7". It seemed any enquiry, done by the government and health department, would not be a fair one. Doctors would be made scapegoats. It was clear that the state government and health department was responsible for pressurizing doctors to "perform", and meet target violating the standard protocol and guidelines

The tragedy is termed as a criminal medical negligence in the eyes of society as it happened in the hands of a doctor. Is it actually a case of- Product liability, Corporate (State Government) negligence, Mal-occurrence or Therapeutic Misadventure?

This case probably fits the definition of Corporate (State Government) negligence, where there is failure of administration which was responsible for providing treatment, accommodation and facilities necessary to carry out the treatment, the State being the corporate[6].

Or is it a case of Medical product liability? Pharmaceuticals are treated differently from manufactured products[8] and it refers to the physical agent that causes injury or death of the patient during treatment. The burden of providing safety effectiveness of the drug lies with the manufacturer. Medical Mal-occurrence-is defined as a less than ideal outcome of medical care and mal-occurrence often unrelated to the reasonable risk of quality of care that was provided[9]. Something which had not occurred previously/ not reported in the literature. The complication which did not occur previously seen for the first time

Therapeutic misadventure: Here the complication is known to occur, but physician gives a drug knowing that the drug which is being given produces such complication, because that is the only drug available for that particular ailment. Further, the ailment is more serious than the complication. The patient can survive with the complication but not with the ailment, if not treated with that drug.

The answer will come in due course of time from the court of law.

Conclusion

Like all negligences, Medical Negligence is a known entity. Doctor treating the patients would never wish in his wildest dream death of a patient in his hand. But tragedies do happen. In the above mentioned case the tragedy was unprecedented, with loss of 13 productive lives. Here the doctor was a victim of circumstances on which he had no control but had to bear the brunt of criticism. All he was doing was for the good of the patients and society at large. He had to pay dearly for it, he had to go to jail and the stigma of going to jail will haunt him lifelong for no wrong doing by him. Doctors being soft targets are easily accused by the government, judiciary, pharmaceutical company and even common men who come as patient.

Doctors are next to God in terms of health and life of the patients. Doctors are not Gods. By means of hard work they acquire skill and knowledge to treat fellow humans. Again becoming a doctor is not like other professionals like engineers or lawyers. Life of a

doctor is a dedicated one for the welfare of the patient. A doctor never wishes to make mistake as his simple mistake can cost a life.

This incident is an example to show how greed for money, by individuals associated with health care business, sometimes do not bother for human life. Government enquiry has no interest to find the actual culprit because in the terms of reference of enquiry there is no mention about fixing the responsibility on purchasing drugs from the blacklisted pharmaceutical company. As we write the conclusion of this article shocking news emerged – The Punjab government on Friday arrested the surgeon involved in the eye surgery camp where at least 37 people were partially blinded[10].

Conflict of interest

None declared

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Letters to Editor

To
The Editor in Chief

It goes without saying the need for the ethical practices in all sphere of life and society is a very important and unavoidable subject. The said journal will be covering very vast topics, highlighting the vital information concerning to the ethical issues related to Forensic Nursing Science, Forensic Odontology and Forensic Psychiatry, ethical aspects of Toxicology including Environmental Pollution and Issues related to corporal punishment and their prevention particularly in schools; physical as well as psychological aspects trauma Clinical Forensic Medicine related to all types of injuries and prevention of injuries; and all aspects of victimology including etiology, Investigation and prosecution to be covered and looked into. It is essential to project appropriate data and details of trauma through various case and studies to enable proficient planning for prevention of trauma and negating its ill effects. This will give an avenue /opportunity for the victims of ragging, corporal punishment and Human Right Violations will get an opportunity to express their agonies and suffering through this Journal. It will be another mile stone in reduction of ragging, corporal punishment, human right violations and social injustice etc.

In the light of the above facts, I feel that publishing journal on ethics, trauma and victimology is need of the day which should be constantly integrating original research, review articles and case reports on ethics, trauma and ictimology, as this will help in enlightening the acquaintance of practitioners. . I take this opportunity, to request you to consider publishing of a long needed Journal on Ethics, Trauma and Victimology which will be a historical step in enhancement of the knowledge of medical and dental practitioners working in associated fields.

Dr Parul Khare Sinha
MDS Oral Pathology
Assistant Professor,
MPCD & RC Gwalior
Presently Pursuing
To
Masters in Forensic Odontology
KU Leuven
Belgium

To
The Editor In chief

I would like to express my heartiest good wishes for this valuable contribution in the field of medical sciences. Knowledge and practice in this field are constantly changing. As new research and experience broaden our knowledge, change in practice may become more necessary. Forensic science is a field where different fields as forensic pathology, microbiology, biochemistry, toxicology, serology and biotechnology, including the genetics etc. are being applied for valuable investigations. The investigations are of value to public health in broader sense. The importance of this medical field of science is the area where medicine and science interact with law.

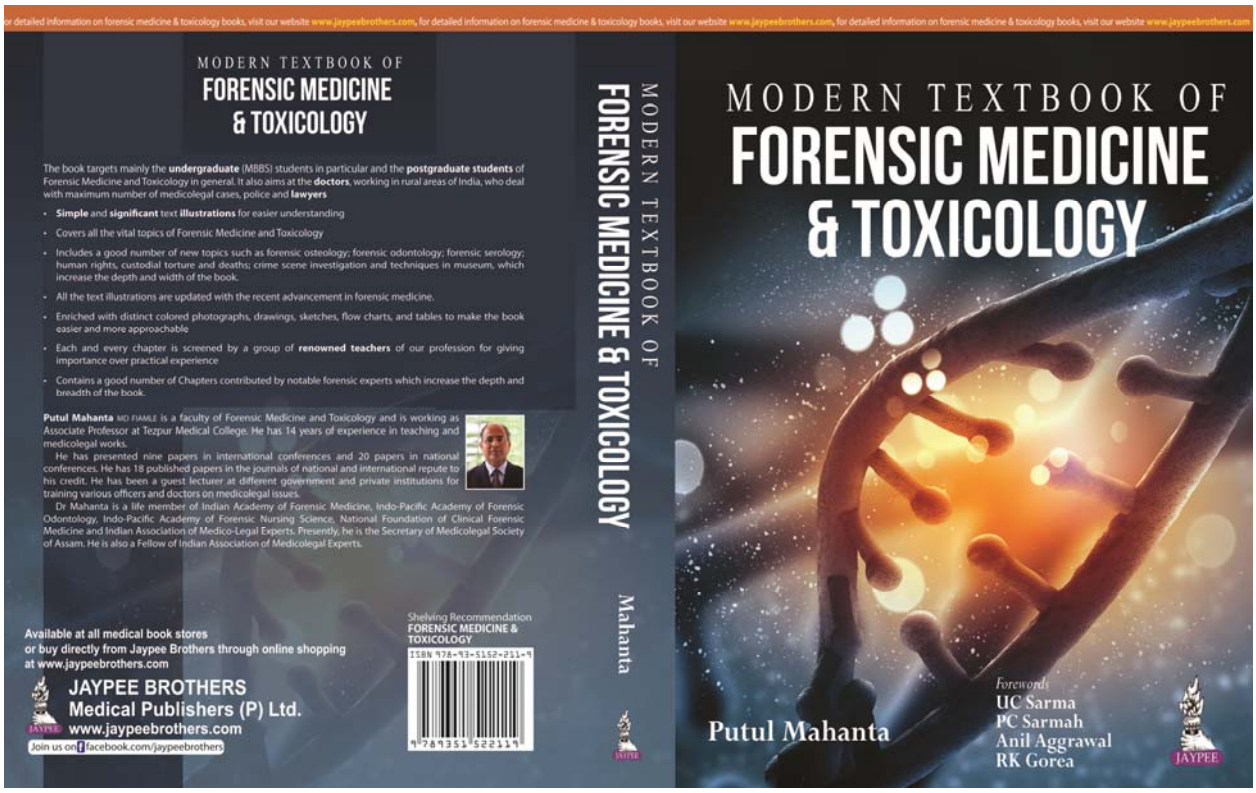
The research journal supported by the Society for Prevention of Injuries & Corporal Punishment (SPIC) will help the researcher in clinical research to understand their ethical responsibilities to meet professional, institutional and federal standards for conducting research with human participation. Abuse and interpersonal violence were once thought to primarily affect specific high risk populations, but it is now understood that all the people may be at risk. The journal will also focus upon the traditional and upcoming areas of research on victimology. This is in turn will open the doors to the considerations of political human right issues, including victimization surveys, compensation and victim in criminal justice system.

It is an initiative to improve the value of medical research literature by providing genuine and good quality research and analysis in the areas of ethics, socio-legal studies, criminology, law & justice. It will provide a forum for the physicians and researchers to discuss issues related ethical considerations in international research and the integrity of the work submitted or published in the journal.

Regards

Dr Mohammed Sarosh Khan
College of Medicine
Al Kharj
Kingdom of Saudi Arabia

Book Review



Modern Text Book of forensic Medicine & Toxicology has been beautifully edited by Dr. Putul Mahanta. Dr. Mahanta has added his life experience to this book which makes it more useful to the practitioners of Forensic Medicine. I personally know Dr. Mahanta since a long time and was always impressed by his approach to the subject: always a positive critic and very enthusiastic about the advancement of the forensic Medicine which is well reflected in the book by inclusion of many new topics which are not common. This book is beautifully illustrated with photographs and sketches. Experts of various fields have contributed different chapters for this book bringing their expertise to the medical students. Of course this has resulted in swelling of the volume of the book. This has been printed on a very good paper in a nice style by Jaypee Brothers medical Publishers (P) Ltd.. This book will also be useful to advocates and judiciary as a reference book. It is a low cost book which I feel will be equally useful for the undergraduate and the postgraduate students.

Dr. RK Gorea

INSTRUCTIONS TO AUTHORS

Preparing A Manuscript For Submission to International Journal of Ethics, Trauma and Victimology

Unpublished original manuscript written in English should be sent to:

Dr. RK Gorea, Editor, International Journal of Ethics, Trauma & Victimology by email at editoretv@gmail.com

The Publication Particulars

The IJETV is the publication supported by SPIC, published since 2015.

The Contents of the Journal

The journal accepts a range of articles of interest, under several feature sections as follows:

- Original Papers: Includes conventional observational and experimental research.
- Commentary: Intended for Reviews, Case Reports, Preliminary Report and Scientific Correspondences.

Letter to the Editor

Designed to be an avenue for dialogue between the authors of the papers published in the journal and the readers restricted to the options expressing reviews, criticisms etc. It could also publish letters on behalf of the current affairs in the field of Ethics, Trauma & Victimology

Editorial

Intended as a platform, for the Editor-in-Chief and for others with a keen interest in Ethics, Trauma & Victimology that wished to comment on the current affairs.

Special Features

Book Review, Abstracts, Announcement etc, which appear frequently, but not necessarily in every issue related to Ethics, Trauma and Victimology.

News and Notes

Intended for providing information of members and activities of the Society and other such other organizations affiliated to the Society may appear frequently and not in every issue.

General Principles

The text of observational and experimental articles is usually (but not necessarily) divided into the following sections: Introduction, Methods, Results, and Discussion.

This so-called "IMRAD" structure is not an arbitrary publication format but rather a direct reflection of the process of scientific discovery. Long articles may need subheadings within some sections (especially Results and Discussion) to clarify their content. Other types of articles, such as case reports, reviews, and editorials, probably need to be formatted differently. Electronic formats have created opportunities for adding details or whole sections, layering information, cross linking or extracting portions of articles, and the like only in the electronic version. Double spacing all portions of the manuscript— including the title page, abstract, text, acknowledgments, references, individual tables, and legends—and generous margins make it possible for editors and reviewers to edit the text line by line and add comments and queries directly on the paper copy. If manuscripts are submitted electronically, the files should be double-spaced to facilitate printing for reviewing and editing. Authors should number all of the pages of the manuscript consecutively, beginning with the title page, to facilitate the editorial process.

International Uniform Requirements

Please visit **http://www.icmje.org/** for detailed instructions for manuscript submission.

Society for Prevention of Injuries and Corporal Punishment (SPIC)

(HO: DAV School , Patiala, India)

ACHIEVEMENTS OF MEMBERS REPORTED TO JOURNAL

Dr. AD Aggarwal has been promoted as Associate Professor, Forensic Medicine, Government Medical College, Patiala, India

Dr. Anil Garg is promoted to the post of Associate professor, Forensic Medicine, Gian Sagar Medical College, Patiala, India

Dr. DS Bhullar has been promoted as Associate Professor, Forensic Medicine, Government Medical College, Patiala, India

Dr. Maneesha Sharma has been promoted as Professor, Anatomy, Gian Sagar Medical College, Patiala, India

Dr. MK Yadav is now principal of a medical college in UP.

Dr. OP Jasuja is now Head of Department of Forensic Science, Punjabi University, Patiala

Dr. RK Gorea has been appointed Professor Emeritus, JJT University Rajasthan, India and is advisor to Indo Pacific Academy of Forensic Odontology. He is also course coordinator of Medical Ethics in College of Medicine, Salman bin Abdulaziz university, KSA

Dr. TD Dogra is Vice Chancellor of SGT University, Noida, India

Dr. Vinod Kapoor is promoted to the Dean of Gian Sagar Institutes and is president of Indo pacific Academy of Forensic odontology


SOCIETY FOR PREVENTION OF INJURIES AND CORPORAL PUNISHMENT
SPIC

Society for Prevention of Injuries & Corporal Punishment [SPIC]

HO: DAV School, Patiala, 147001 India

http://www.spic.org

Application for Membership

To

The General Secretary
Society for Prevention of Injuries and Corporal Punishment

Dear Madam,

I wish to become a Life Member of SPIC. I am furnishing the required particulars below with a request to enroll me in the Society. The fee of Rs. 2000 In India/ 200 Riyals in KSA/US $ 100 in any other country for Life Membership is enclosed as a Demand Draft with No_____ Of _____Bank, in the name of SPIC, payable at the Patiala city or the office of General Secretary of the Society along with my two passport size photographs.
I have gone / will go through the rules and regulations of the academy and I agree to abide by the same.

PARTICULARS

1. Full Name (in block letters)_____
2. Father's / Husband's name _____
3. Date of Birth _____
4. Qualification (with name of university & date of passing) _____
   _____
5. Official Designation _____
6. Place of Posting _____
7. Permanent Address_____
   _____
8. Address for Correspondence (subsequent change of address to be intimated) _____
   _____
9. Phone No._____Email _____

Place
Date

Yours Sincerely

Signature)

FOR USE OF SPIC
Membership Accepted with Life membership No. / SPIC / / Dated

President **Treasurer** **Regional Coordinator/Director Coordinator**

1st conference of Society for Prevention of Injuries & Corporal Punishment (SPIC) At Gian Sagar Medical College, India Secretary SPIC Mrs. Kiranjit Kaur addressing audience with Vice Chairman Dr. Sukhwinder Singh, Vice Chancellor RGNUL, Patron SPIC & Principal DAV Public School Mr. SR Prabhakar , Director HS Dr. JP Singh and President SPIC Dr. RK Gorea

Audience in the conference

With good wishes to the Editorial Board of
International Journal of Ethics, Trauma & Victimology
From Overseas Wing of SPIC

OUR COMPANY IS LEADING HONG KONG BASED HUMAN RESOURCES AGENCY

Ming and Coldwell congratulate Professor Rakesh Kumar Gorea and the entire staff of the International Journal of Ethics, Trauma & Victimology on occasion of the publication of the first edition.

We are confident this journal will have a long and bright future, educating and assisting all professionals in this distinct and valuable discipline.

"Study the past if you would define the future"
(Confucius)

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