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Aims and scope

This journal is published to expand the academic activities and spread the knowledge, ideas and latest research in the field of ethics, trauma, and victimology. This 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 the 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
College of Medicine
Prince Sattam Bin Abdulaziz University
Kingdom of Saudi Arabia

From the Editor's Desk

Here I am presenting the 7th issue of the International Journal of Ethics, Trauma and Victimology and we are successfully entering the 4th year of publication. We have received articles from eminent authors from the different parts of the world. We are getting prompt services from the reviewers and this tells us that progress of this journal is happening as per our expectations.

I am thankful to all our contributors, reviewers and members of the editorial board for their continuous support and constructive criticism. I am thankful to all the well-wishers and the Society for Prevention of Injuries and Corporal Punishment for their unstinted support to this journal. I promise to all the readers for the continuous improvement of the journal as per your wishes.

Rakesh K Gorea

Editorial

A brief review of the ethics of stem cell research

Citation: Gorea RK. A brief review of the ethics of stem cell research. *Int J Eth Trauma Victimology 2018*;4(1):6-9.doi.org/10.18099/ijetv.4.4.1

Abstract

Stem cell research is a still a controversial area of the research and different countries have different levels of acceptance to the different domains of this area. Reason being the different ethical values depending on the culture and religions of the different countries. In this paper different ethical values and practices in stem cell research are being discussed as this a practice which holds the future for managing many diseases.

Keywords: Stem cell research; ethics; oocyte donation; stem cell therapy.

Introduction

Stem cell therapy is giving injections of stem cells. Stem cells are providing relief to many diseases which are not curable or chronic requiring medicines for the rest of life. It is also being used in trauma cases where otherwise lengthy surgeries are needed and which is being replaced by stem cell therapies. Stem cells may be obtained from a blastocyst (embryonic stem cell) or from some selective adult tissue (Adult stem cells) (1). Stem cell research is necessary to know how to control stem cells differentiation, study drug screening, modeling diseases and therapies based on stem cells (2).

Embryonic stem cell research though can cure many diseases and looks very promising yet it has a lot of opposition because this embryo has to be destroyed. Embryonic stem cells are taken from the inner cell mass of the blastocyst (3).

Embryonic stem cell research has more ethical issues than the adult stem cell research as different religions have different views on the different entities of the embryonic stem cell research. Catholics are more restrictive (4) as the sacredness of human life is considered by Malaysian Catholics (5) and so are the Hindus and Buddhists as it involves sanctity of human life but Malaysian Hindus and Buddhists allow research with reservation though it is harming of a life yet the intentions are good (5). Judaism and Islam do not believe that life starts with embryo and Jews also do not believe that that start of the life is embryo (6).
In Germany, there is restrictive regulation on the embryo research and is due to its Nazi past and Catholic religion and have in place the Acts like “Stem Cell Act” and “Regulation of Preimplantation Genetic Diagnosis” (4).

In UK Mitochondrial Replacement Techniques are allowed under “HFE Regulations 2015” and the objections of possible harm to egg donors, affect the studies of genealogical ancestry and transmission of nuclear DNA only against it does not seem legal (7).

Though Induced Pluripotent Stem cell research is a great potential yet it also has the ethical problem of a somatic cell being used in a manner where it develops a Pluripotency (8).

Embryonic stem cells for research are usually taken from the leftover embryonic stem cells of the clinics helping infertility procedures (9)(10). Oocyte donation is a well-accepted procedure for the infertile couples in the USA and is a big industry but it is involved in many ethical and legal issues. Authors have identified four distinct areas of donation of the oocytes and how to select these donors, how to screen them, to retrieve the
oocytes and then how to monitor these donors (11).

In this procedure, there are compensation issues in addition to medical and psychological issues in the procedure of IVF involving stimulation, egg retrieval, insemination and fertilization, embryo culture and embryo transfer (12). As stimulation of the ladies to get the oocytes may result in Ovarian Hyper Stimulation Syndrome which can result in medical complications and there are chances that in future these women may become infertile and ultimately with dangers of ovarian cancer. If it is allowed fully informed consent should be taken and if we do not allow it there we are denying the right of self-determination and we are not respecting the autonomy of the person. (12).

Testicular tissue cryopreservation is another area where tissues can be used for further reproduction in patients who take chemotherapy and their fertility may be affected due to anticancer treatment at a young age. But this method also has ethical issues which are poorly studied so far (13).

Regenerative medicine though seems to be very useful but again it has the challenging issues of selecting the persons for the clinical trials due to difficulties in obtaining informed consent as the future benefits may be uncertain and balancing the benefit-harm and selection of the size of the sample in such cases but it is ok if there is low risk and degenerative manifestation can be related to the disease (14).

Stem cell treatment has even found a curefor HIV infected patient. It is important to note that cure word is important psychologically though in the clinical context remission may be more appropriate (15).

In research, data may be duplicated usually partially and this is a big ethical issue. The data is fabricated more at the undergraduate level (16). If commercialization of University research is done it has its own ethical issues and usually, it is commercialized before it is fully researched and it affects the environment of the research and may harm the long run to the research in the universities (17). Research on the stem cells is also going to be affected by the economic interests (10).

Compromises may be done in stem cell research as people are divided into groups supporting or opposing the idea of research on this controversial topics but taking stand can sometimes corrupt the ideas and lower the standards (18).

Mitochondrial replacement technique or three parents 'In Vitro Fertilization' in which mitochondrial DNA of from donor egg and DNA of mother and father are used to produce a child to take care of the mitochondrial-related diseases. In this child will be free the mitochondrial-related disease in the mother. In the UK this is permitted by law though it is not permitted in the USA. Designer babies are considered risk especially to the future generations. And with the risk to the exploitation of the egg donors and the ethics of privacy of the donor along with the objection of killing the embryos after experimenting on them (19).

Proponents of this stem cell research that it has a great potential to cure many diseases like Parkinson's disease, degenerative and debilitating diseases, diabetes (9) and Alzheimer's disease (1).

Opponents put forth the view that in this blastocyst which can develop into a human being has to be destroyed equals to destroying one human life (9)(4).

Material and methods

Web of Science was used to retrieve the articles for this research. 12 papers were selected after reading their abstracts and findings from these papers are being presented. To cover the gaps, google search was used and google scholar was used to retrieving the full papers and get some additional papers.

Discussion

Stem cell therapy offers to vide coverage to diseases from trauma, degenerative diseases and diseases related to genes. Stem cell research involves Embryonic stem cell research and Adult stem cell research. Adult stem cell therapy and research are less objectionable as compared to embryonic stem cell research due to the moral status of the embryos as these cells have all the potential to develop into a full human being and life are considered to start with the formation of the zygote.

The greatest challenge to the stem cell research is the practice of violation of pledge taken not to kill the human being right from its inception. It may seem that enhancement of the features of human beings is like playing with nature and if it is not guided by ethical values it may become an uncontrolled double-edged weapon.

Adult stem cells are not ready to isolate whereas embryonic stem cells are available in plenty and that makes it a favorite area of research.

As the practice of oocyte donation is increasing and there may arise conflicts of interest between donors, professionals and the recipients so there is need to reduce the conflicts so the research on this issue becomes

more imperative. Mediation and prohibition have been suggested as a means to resolve this conflict but the best way is to self-regulate the profession (11).

Problems will be less if use organismically dead embryos. Somatic cell nuclear transfer [SCNT] technology though produce embryo in the labs yet again there is the destruction of an embryo in this procedure and may have the same ethical problems for the egg donors. In interspecies SCNT problems are less as there are no donors so the question of exploitation is absent. Induced pluripotent stem cells can be the source of the stem cell with less ethical issues.

We should be able to identify the ethical issues in the research of stem cells and should try to address them before we start the research.

Conclusion

Problems of adult stem cell can be taken care of by well-informed consent of the donor. Research on stem cell research has many proponents and many opponents and each group offering valid logic. But in the science, it has always been seen that whenever a revolutionary idea and practices start there is always a strong opposition due to religious and cultural values of different groups but as more and more therapeutic values get established opponents go on becoming weak. This is true with the stem cell research and this is going to stay and develop and has a vast scope of providing benefits to the humanity.

Conflict of Interest

None

Dr. Rakesh K Gorea
Editor-in-Chief

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Proportion and characteristic of homicide victim examined in Forensic Medicine Installation Sardjito Public Centre Hospital (2003-2013)

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Abstract

Homicide is a global phenomenon but characteristic of homicide may be different in different areas of the world. This is a 10-year homicide study conducted in in Indonesia to find out the various characteristics of homicide in Indonesia varying from personal features of victims, pattern of injuries and causes of death. Motives of assaulters and their relationship with the victims were also studied. In this study 339 victims of homicide were studied. Adults and men were mostly the victims. Trauma was the most important cause and beating by family members was the reason. Revenge was the reason behind most of these murders.

Keywords: Characteristics of homicide; motives of murder; cause of death.

Introduction

Homicide-related violence is a global problem at this time. According to the World Health Organization (WHO), every day approximately 1424 people die from being killed. According to the United Nations Department of Drugs and Crimes reported in the April 10 Daily Mail April 2014 that the homicide rate in America and South Africa is still high that is four times higher than the global average of about 6.2 victims per 100 thousand people While the regions of Europe, Asia and Oceania the case of the homicide is still low.

In the jurisdiction of the Yogyakarta Special District Police (DIY), homicide cases increased in 2013 compared to the previous years. However, the police cannot infer the cause of the increasing crime that killed others. Criminologist Erlangga Masdiono (2011) said that the high level of criminality in Indonesia is caused by several factors such as poverty, dysfunction of norms and law, disharmony of related elements, shifting character of the nation, and also an education system that does not teach ethical values, including education religion that emphasizes the cognitive aspect only.
The perpetrator killed the victim, usually based on the motives of revenge, jealousy, robbery, and self-defense, but the motive is mostly due to revenge. Male criminals are generally more than women and their mode of operating (modus operandi) is more varied and sophisticated. This murder can be done in various ways, most commonly using firearms or sharp weapons, and also with explosives materials such as bombs. According to Putra and Wendi (2010), a criminal act in Lampung, Indonesia was influenced by many factors such as crime motive, job type, gender, the age of the perpetrator, and last education of the perpetrator (1). Characteristics of a murder victim generally are close or familiar with the culprit. While the characteristic of murderers does not know the gender. But the perpetrator of the murder of the female sex who underlies his murderous act is able to feel there is gender injustice (2).

Based on data in the world, murder cases in Indonesia, especially the Special Region of Yogyakarta tend to increase every year. The trend or mode of operating of the perpetrators also seems to be more varied and more sophisticated. This is certainly a challenge for law enforcement and indirectly for forensic medicine to assist the

law enforcement process. One of the first steps is to know the description and characteristics of the victim and the perpetrator of the murder. Therefore, a study aimed to obtain the description and characteristics of victims and perpetrators of the murders are handled in Forensic Medicine Installation RSUP Dr. Sardjito Yogyakarta.

Materials and Methods

This is a cross-sectional, observational analytic research. Data was taken from April to June 2014 at Forensic Medicine Installation of Dr. Sardjito Hospital, Yogyakarta. Research subjects were the autopsy report (visum et repertum/VeR) data of murder victims examined at Forensic Medicine Installation of Dr. Sardjito Hospital for the period of 2003-2013 and the chronological data of the incident or investigation report. The inclusion criteria were all VeR of murder victims examined for the period 2003-2013, while the exclusion criteria were VeR which was not murder cases and murder cases whose visum et repertum could not be found. The tool used in this research is using a checklist. Checklist contains variables to be observed, i.e. number of homicide cases, sex, age, type of examination, cause of death, location of injury, type of injury, presence or absence of rebel or tank injury, perpetrator relationship with male and female victims, murderer motives and differences of crime scene between male and female victims.

This research was conducted by collecting data of victims of death from the murder of visum et repertum and perpetrators of the murder of chronological sheets of events at Forensic Medicine Installation of Dr. Sardjito Hospital for the period of 2003-2013. The data is sorted into several groups, then presented in tabular form, then analyzed.

Results

A number of homicide victims meet the inclusion criteria in this study as many as 339 victims with the frequency of victims per year shown in the picture and tables below:

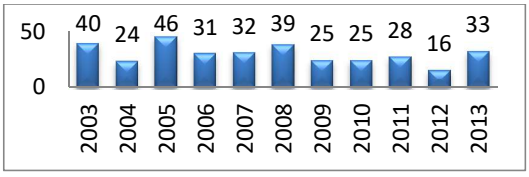

Fig 1. The frequency of homicide victims in 2003 – 2013

Table 1: Homicide victim's distribution

No.	Characteristic	Frequency	Percentage (%)
1.	Gender		
	Male	191	56,3
	Female	148	43,7
2.	Age criteria		
	Neonates (0-30 days)	85	25,1
	Infant (1-2 years)	0	0
	Young child (2-6 years)	5	1,5
	Child (6-12 years)	2	0,6
	Adolescent (12-18 years)	19	5,6
	Adult (18-64 years)	200	59,0
	Elderly (>64 years)	28	8,3
3.	Kind of examination		
	External examination	64	18,9
	External and internal examination	275	81,1

Table 2: Distribution of crime scene

Crime scene	Frequency	Percentage(%)
Outside the house	232	68,4
Inside the house	107	31,6

Table 3: Homicide victims wound distribution

No.	Characteristic	Frequency	Percentage (%)
1.	Cause of death		
	Trauma	262	77,3
	Intoxication	19	5,6
	Drowning	3	0,9
	Combustion	4	1,2
	Undetermined	51	15,0
2.	Site of wound		
	No wound	26	7,7
	Head	162	47,8
	Neck	52	15,3
	Chest	17	5,0
	Abdomen	7	2,1
	Extremity	3	0,9
	Genital	2	0,6

	Combination	22	6,5
	Cannot be assessed	48	14,2
3.	Type of wound		
	No wound	27	8
	Contusion	70	20,6
	Fracture	84	24,8
	Stab Wound	26	7,7
	Incised wound	13	3,8
	Chop wound	9	2,7
	Laceration	4	1,2
	Impact abrasion	28	1,8
	Combustion	4	5,6
	Gunshot Wound	6	14,5
	Combination	19	
	Cannot be assessed	49	
4.	Defense wound		
	Found	131	38,6
	Not found	208	61,4

Table 4: Victim and perpetrators relationship

Victim and perpetrators relationship	Frequency	Percentage (%)
Family	39	11,5
Friend/ Acquaintances	28	8,3
Boy/girlfriend	6	1,8
Unknown	266	78,5

Table 5: Manner of homicide

Manner of homicide	Frequency	Percentage (%)
Hit	116	34,2
Snared	29	8,6
Stabbed	24	7,1
Burned	4	1,2
Intoxicated	19	5,6
Shot	6	1,8
Drowned	3	0,9
Strangulated	9	2,7
Smothered	3	0,9
Chopped	14	4,1
Combination	49	14,5
Unknown	63	18,6

Table 6: Mode of operation

Mode of operation	Frequency	Percentage (%)
Revenge	36	10,6
Self-defence	5	1,5
Robbery	25	7,4
Jealousy	10	2,9
Unknown	263	77,6

Discussion

According to the United Nations, the number of murderers all around the world has declined, although only slightly, for the US and South Africa, the murder rate is still very high. Even that figure is four times higher than the global average, about 6.2 victims per 100 thousand people. In Indonesia, especially in Yogyakarta Special Region, based on Yogyakarta Police Direskrimum (Directorate of General Crime Detective/Reserse) data there is a decline in the number of murders in 2011 to 2012 but then increased again in 2013.

From 2003 to 2013 there were 368 murder cases handled at the Forensic Medicine Installation of Dr. Sardjito, but only 339 murder cases were taken for this study because the other cases did not meet the inclusion criteria.

In 2003, there were 11.8% of homicides then decreased in 2004 (7.1%) but increased again in 2005 (13.6%). This trend continues over and over again in the years to come. In 2011 there was a decrease in murder victims from 8.3% to 4.7% in 2012 but then increased sharply to 9.7%.

According to Masdiono (2011), the high level of criminality in Indonesia caused by several factors such as poverty, dysfunction of norms and law, disharmony of related elements, shifting character of the nation, plus an education system that did not teach ethical values, including religious education that emphasizes the cognitive aspect only. Table 1 shows that 56.3% of murder victims were male, a similar proportion was found in Norway (58%). In Chicago, Finland, India, and Italy the proportion of male victims varied between 64% and 73.6%. The prevalence of male victims is demonstrated in many studies around the world, possibly linked to greater men's presence in social life and in organized crime, but can be attributed also to different biological properties of high testosterone levels associated with more aggressive behavior (3). The age group used in the study was the age group based on WHO. This study showed that most victims were from the adult age group (59%), 25.1% were neonates (0-30

days), 8.3% were elderly (elderly:> 64 years), similar results were also seen research Hagelstam et al (4) in Finland (2006) and Vij et al (5) in South India (2010). An autopsy or post-mortem examination is a dissection of the corpse. This is done for various reasons, including education and legal considerations. Autopsies may determine the cause, mode, and mechanism of death (6). The forensic examination of the corpse includes an examination of the corpse, without acts that damage the integrity of the mortal remains and the complete coronary examination by opening the cranial, neck, chest, abdominal and pelvic cavities (7).

Table 1 shows that 81.1% of homicide victims were examined outside and inside while the remaining 18.9% only performed outside examination of the corpse. In the corpse only examined outside the corpse alone, the conclusion of visum et repertum mention the types of injuries or abnormalities found and the types of violent causes, while the cause of death cannot be determined because of no surgical examination of the corpse.

Table 2 shows that 68.4% of homicide victims were found outside the home while 31.6% of homicide victims were found inside the house. These results differ from those of Kristoffersen et al(8) in Norway (2014), Hagelstam and Hakkanen(4) in Finland (2006) and Verzeletti et al (3) research in Brescia County, Italy (2013) where more casualties were found in the home, 76 %, 54% and 51%. This is possible because victims who are outside the home get help more often because of people passing by.

The results in Table 3 are similar to those obtained in the Coelho et al (2010) study where the most wound sites were on the head (9), followed by the chest and neck, and Vij et al (2010) study where the most wound sites on the head (22.4%)(5). But different results were found in Verzeletti et al (2013) showing 28% of the most lethal wound sites located on the chest and 25% on the head (3). This can be because the location is a well-known anatomical area for human vital interests.

Characteristics of types of injuries in Table 3 and Methods of victims killed in Table 5 are interrelated. If grouped, it is mostly caused by dull and sharp violence, while in Verzeletti et al (3)research, many male victims were killed using firearms and sharp objects, followed by blunt objects, while women used firearms, sharp weapons, and asphyxia. This type of wound difference is possible because of the availability of such weapons where there is a strict law on gun ownership or it may also be due to cultural differences. As many as 8% of victims in this study had no injuries, this was possible because the victim was killed by a poison that did not cause injury to the outside of the victim's body. There are 14.5% of victims cannot be assessed the type of wound, this is due to the condition of the victim that has happened further decay, making it difficult to know the type of wound on the victim.

Defense wound is a wound caused by the victim's effort to self-protection and is commonly found in the hands, arms and even upper arms, potentially involving both extensor and flexor aspects (10). A total of 38.6% of murder victims in this study have signs of badminton injuries, This result is similar to the research from Hugar et al (11) and Vij et al (5) whereas both of them explained defense injury on the victim as much as 33% and 22.47% respectively. Victims without defense injuries were possible because of an unplanned murderer or multiple (more than one) perpetrator (5). Hugar et al (2012) explained that the highest number ofdefensive injuries appear in the 20-29 years age group but no defense injuries in the age group 0-9 years (11), this could be due to the incompetence and unawareness of children about what happened to them.

The underlying motives for the murder of men against men are social status conflicts, pride, and reputation, and also conflicts over material resources. Table 6 shows that the motive for the killing is caused by revenge (10,6%), robbery (7, 4%), self-defense (1.5%) and jealousy (2.9%). This result is similar to that of Lemard and Hemenway (2006) where most of the motives are revenge (12). In Canada, Serran ,and Firestone (2004) and in Finland, Hakkanen-Nyholm (2009) murder in women is based on jealousy by their spouses (13)(14). According to Coelho et al (2010) robberies became the highest motive to murder in the elderly, although some cases still unknown motive (15). In this study as many as 77.6% of cases unknown motive killing, this is because there is no information on the death of the victim.

In this study, 11.5% of the perpetrators relate to the victim, 8.3% of the perpetrator is the victim's acquaintance, 1.8% of the perpetrator is the victim's girlfriend, while 78.5% of the perpetrators are unknown to the victim because this is possible because the perpetrator is unknown victim or perpetrator is still unknown. This result is slightly different from the research of Hakkanen-Nyholm (2009) (14) 53.8% of the perpetrators are victims

acquaintances, followed by the victim's partner, victim's family, and unknown person, while Kristoffersen et al (2014) (8) explained that in Norway 21% murderer done by victim's partner.

Conclusion

Based on this research we can conclude that there are 339 murder victims from 2003-2013, with the proportion of most men and adulthood, 81.1% of cases carried out outside and inside examination, the cause of death is the most trauma and type of wound most is the wound of broken bones and bruises, the location of the most common wound is the head., the most common victim is killed by beating, and 38.6% of the victims are found worst injured, the perpetrator is dominated by the victim's family, the most because of revenge motive, the victim is more found outside the house, and there is a significant difference in the crime scene between men and women, where more male victims were found outside the home rather than inside.

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Estimation of stature from foot length among Uttar Pradesh population

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Abstract

As foot size and stature can be correlated positively in a strong way, foot length analysis can help in estimating an individual's stature; the foot length is also considered as indicators of skeletal and body structure of a person. Foot length was recorded as the distance from the most prominent part of the heel back to the most distal part of the longest toe. Height was recorded as the vertical distance between the point vertex and heel touching the floor. The statistical tests used were Unpaired or Independent t-test, Paired t-test, Pearson's correlation coefficient (r) test, and Linear Regression analysis. The comparison of mean Foot length on the Right and Left side showed no significant difference in mean Foot length between Right and Left side for over-all population, males, and females. There was a significantly positive correlation between Height and Weight with Right and Left Foot length among the over-all population, males, and females. The study concluded that the height (stature) has a strong positive correlation with the various measurements of the footprint and length of the foot. The study would be helpful in interpretation and analysis of footprints in criminal cases pertaining to rivalries, homicides, sexual offenses especially robberies, thefts, shoplifting, dacoity, etc. where the person is lifting the bags, gunny bags full of some material and leaving the footprints at the crime site.

Keywords: Foot length; height; footprint.

Introduction

Forensic podiatry involves applying the knowledge of sound and research of the podiatric information and experience in forensic investigations, for demonstrating the individual's association with a crime scene or answering any legal question related to the foot or footwear requiring facts/ information of the foot which is predominantly functioning (1)(2).

There is a requirement for establishing the identity of remaining body parts which can happen during the mass disasters like attacks of the terrorists, mass murders, transport-related accidents, tsunamis, floods, and earthquakes. Stature estimation is important for forensic investigation and considered to be one of the 'big fours' of forensic anthropology (3)(4)(5)(6). Stature is the height of the person in an upright posture. It is an important physical identity. For identifying an individual, "Stature" is considered to be one of the most relevant elements (7).

A footprint is an impression of the weight-bearing areas of the plantar surface of the foot. Footprints can be found on rain covered surfaces, newly waxed floors, freshly cemented surfaces,

moistened surfaces, in dust, mud, sand, oil, paint, and blood at murder scenes (4)(8). The estimation of stature using the different long bones length has been used in many studies by utilization of either multiplying factors or regression formulae (9). So, the present study was conducted with an aim of finding out whether a correlation existed of foot length with stature and also for deriving regression equations for stature from the length of the foot.

The present study is an attempt to understand the relationship between stature and weight from feet dimensions of students of T.M.M.C & R.C.

1. Estimation of stature from the percutaneous measurement of foot length up-to maximum length of the foot.
2. To understand and describe regression, the equation for stature estimation from the above dimension.
3. To compare between male and female foot length.

Materials and Method

The study population consisted of 100(50%) male and 100(50%) female of western Uttar Pradesh. The mean height in cms and weight is in kgs

The present study was conducted to assess the estimation of stature from footprint among students of Teerthanker Mahaveer Medical College & Research Centre, Moradabad between the age group of 18-30 years of age from January to December 2016.The subjects with Flat foot and Supernumerary toes, with deformities of the foot, lower limb and vertebral column and chronic illness were excluded from the study

The subject is made to place their right foot on the osteometric board, the movable plate was adjusted to measure the most anteriorly projected point. The unit of measurement is in centimeters (cms) and calculated to the nearest millimeters (mms). A similar procedure was done for the left-sided foot too.

Height was recorded as the vertical distance between the point vertex and heel touching the floor.

Results

The study population consisted of 100(50%) male and 100(50%) female of western Uttar Pradesh. The mean height in cms and weight is in kgs

Table1: Showing a comparison of mean Height (cms), Right and Left foot length between males and females among the western UP population

	Male		Female			
	Mean	SD.	Mean	SD	Mean Difference	p-value
Height(Cm)	174.07	6.1	157.46	5.6	16.61	0.001*
Right foot	25.78	1.0	23.46	1.1	2.32	0.001*
Left foot	25.69	1.0	23.49	1.1	2.20	0.001*

Unpaired t-test

* Significant difference

Table 2: Comparison of mean Foot length between Right and Left sides

	Right side		Left side			
Foot length	Mean	SD	Mean	SD	Mean difference	p-value
Over-all	24.6	1.5	24.5	1.5	0.03	0.47#
Male	25.7	1.0	25.6	1.0	0.09	0.27#
Female	23.4	1.1	23.4	1.1	-0.03	0.31#

Paired t-test

#Non-significant difference

Table 3: Correlation of Height with Right and Left Foot length among the over-all population, males, and females

Height		Foot length	
		Right side	Left side
Over-all	Pearson	0.875	0.849
	p-value	0.001*	0.001*
Male	Pearson Correlation	0.856	0.838
	p-value	0.001*	0.001*
Female	Pearson Correlation	0.795	0.789
	p-value	0.001*	0.001*

Table 4: Regression equations for estimation of Height (in cms) from Right and Left foot length (in cms)

	Regression equations for Right foot length	Mean error	The regression equation for Left foot length	Mean error
Height (in cms)	5.969 x Right Foot length + 23.044	3.89	5.904 x Left Foot length + 24.578	3.56

Conclusion

The present study concluded that height (stature) has a strong positive correlation with the various measurements of the footprint and length of the foot. The study would be helpful in interpretation and analysis of footprints in criminal cases pertaining to rivalries, homicides, sexual offenses especially robberies, thefts, shoplifting, dacoity, etc. where the person is lifting the bags, gunny bags full of some material and leaving the footprints at the crime site. Researchers are encouraged to use a variety of medium (like mud, sand, blood, dust, liquid, etc.) on which the prints can be made so that the effect of additional weight can clearly be investigated.

The stature of an individual can be successfully estimated from the foot and its segments using different regression models derived from the study. It was observed that the regression models derived from foot length measurements were more reliable than those from foot breadth measurements in the prediction of stature in forensic examinations.

Suggestions for future studies

Researchers are encouraged to conduct similar studies in different population groups to look into the generation of additional standards which can further be used in the identification of individuals from human remains.

Conflict of Interest

None

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The readiness of Forensic Specialist Doctor in using Multi-Slice Computed Tomography (MSCT), Magnetic Resonance Imaging (MRI) and Multi-Phase Post Mortem Computed Tomography Angiography (MPMCTA) to handle the forensic case in Indonesia

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Abstract

An autopsy is an action that performs slicing on the corpse to search for the cause of death, the time of death, and may be related to death way. Family autopsy rejection increases from year to year around the world. In Indonesia, the main issue of rejection by the family includes religious or belief reasons and humanitarian reason. Virtual Autopsy is a breath of fresh air for the forensic doctor, radiology doctor, community and hospital to deal with conventional autopsy rejection. The minimally invasive method offered by this technology has the potential to increase the prevalence of autopsy, especially in Indonesia.

The purpose of this study, the writer wants to know how the readiness of forensic specialist doctor if this method is applied in Indonesia to handle the forensic case by using PMCT.

This research is qualitative descriptive research. The data collected by giving the questionnaire to 75 respondents, namely Forensic specialist doctor from 24 provinces in Indonesia at the National Congress and the Annual Scientific Meeting of Indonesian Forensic Doctors Association, held in Bandung on May 16-18, 2016. The data processed by using Ms. Excel 2013. The variables studied are the opinion of forensic specialist doctors when a virtual autopsy is applied in Indonesia to handle the forensic case and their knowledge of virtual autopsy

The results of the study indicate that 83% of respondents are not ready when virtual autopsy is applied in Indonesia to handle forensic case with the most reason that conventional autopsy is more superior than virtual otopsy, 12% state ready if virtual autopsy is applied in Indonesia to handle forensic case on the most reason that virtual autopsy is more accurate and fast, and 5% do not argue. For the average knowledge already knows the existence of this method, but still, do not know how to use the tool of virtual autopsy.

Keywords: Multi-Slice Computed Tomography (MSCT); Magnetic Resonance Imaging (MRI); Multi-Phase Post Mortem Computed Tomography Angiography (MPMCTA).

Introduction

Autopsy or post-mortem examination classically is an action by performing some slicing and some specific techniques on the corpse, with the aim of finding the cause of death, the time of death, which may be related to the death way. Corpse investigation can also be used to look for identification such as in mass disaster. Classical technique in some situations cause problems in religion and culture in the community. Most societies consider the idea of the autopsy is uncomfortable, even some religious groups forbid autopsy beyond the legal requirement (1).

Because of the inconvenience of a classical autopsy, there has been a great deal of resistance in some countries. The rate of autopsy in the United States was 41.1% in 1964, 34.9% in 1972, and 21.7% in 1975. In 1981 the autopsy rate was 15.7% and in 2003 it decreases to 11%, in England and Wales, the rate of autopsy decreases from 8.9% in 1966 to 1.7% in 1991, a similar decline has been reported in Canada, France, China and Zambia (2).

In Indonesia, the refusal reason by the family, in general, is the reason for religion or belief, humanitarian reason, organ or tissue of organ taken and sold, or the organ and body used practically by a student of medicine. In addition to the above reasons, the investigation cost and intricate administrative matter is also the reason for the autopsy rejection (3).

Virtual Autopsy Technique developed by the Forensic Health Institute in Bern, Switzerland, more than 15 years ago with the aim of replacing or adding conventional forensic autopsy. Virtual Autopsy (Virtopsy) or forensic imaging combines survey technology, pathology, radiology, image processing, computer sciences, telematics, physics, and biomechanics. Virtopsy is a combination of post-mortem Computed Tomography (PMCT), Post-mortem Magnetic Resonance Imaging (PMMRI), CT-guide post-mortem Angiography (PM CT angio) and CT-guided post-mortem Biopsy (PM biopsy) (4).

This study focuses on the Virtual Autopsy technology that has been used by medical experts in various countries in recent years, namely using CT-Scan and MRI as the main tool. In Indonesia, CT scan and MRI have been used frequently, but only to assist patient diagnosis, not for autopsy purposes in a forensic case.

Virtual Autopsy is a breath of fresh air for the forensic doctor, radiology doctor, community and hospital to cope with conventional autopsy rejection. The minimally invasive method offered by this technology has the potential to increase the prevalence of autopsy in Indonesia.

Material and Method

The research type is qualitative descriptive with the population of 150 forensic doctors who are in the National Congress and Annual Scientific Meeting of Indonesian Forensic Doctors Association, held in Bandung on May 16-18, 2016. The sample of this research is the informant namely 75 forensic specialist doctors from 24 provinces in Indonesia. The sample determination is determined by slovin formula.

This research started by arranging questionnaire. This questionnaire contains a free and closed question. The data that has been collected will be checked to check its completeness. Then the data will be analyzed by using MS Excel 2013 and then viewed the opinion of ready or not ready of a forensic specialist doctor in Indonesia and the reason.

Results

From the research, I conducted at the National Congress and the Annual Scientific Meeting of Indonesian Forensic Doctors Association, held in Bandung on May 16-18, 2016, with a total of 75 participants, with the research subject of a forensic specialist doctor from 24 provinces in Indonesia.

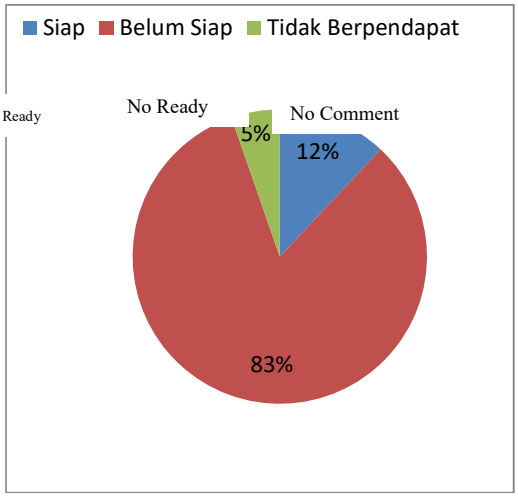

Fig 1. Personal reason about readiness of Forensic doctor for accepting Virtual Autopsy method for handling forensic Case in Indonesia

Table 1: Reason not ready for forensic specialist doctor towards virtual autopsy in Indonesia

No.	Reason not ready	Total
1	Price of *virtual autopsy* (CT-Scan and MRI) is quite expensive.	4
2	A conventional autopsyis still more superior than virtual autopsy	12
3	A virtual autopsy can only be used as a tool	11
4	A conventional autopsy of the Gold standard	3
5	the virtual autopsy does not comply with the applicable law in Indonesia	3
6	Avirtual autopsy can only be applied in some cases	5
7	The result of the virtual autopsy has not been accurate and can not be accounted for	6
8	According to the meaning of visum et repertum	2
9	There is no clinical trial stage to know its equivalent or not with conventional autopsy	1
10	Avirtual autopsy cannot distinguish trauma ofpost-mortem and antemortem	1
11	Not taught on forensic PPDS so must learn radiology science	4
12	Availability of CT-Scan and MRI is still uneven in every hospital	1
13	No multi-department policy	1
14	All parties are not ready	1
15	No reason	7
	Total	62 participants

Table 1 shows the most reason is not readiness of Indonesian forensic specialist doctor for using the virtual autopsy method. According to them, a conventional autopsy is still more superior than virtual autopsy, followed by the opinion that virtual autopsy is used only as a supplemental investigation not for conventional autopsy replacement method.

Table 2: Reason for ready the forensic specialist doctor towards virtual autopsy in Indonesia

No.	Reason for ready	Total
1	A conventional autopsy is an incompatible with the culture in Indonesia and especially Islamic religion	1
2	Avirtual autopsy is more accurate and fast	5
3	Avirtual autopsy is more modern	2
4	No reason	1
	TOTAL	9

From the data above we can know that the most reason for readiness of forensic specialist doctor is because a virtual autopsy is more accurate and fast in doing forensic cases.

Knowledge of Forensic Specialist Doctor Towards Virtual Autopsy Method

In this study, I also investigate how the level of knowledge of forensic specialist doctors and the result is from 75 participants only 10 people do not know virtual autopsy but the data for the procedure of using virtual autopsy that all participants claim not understand the procedure of using virtual autopsy.

Discussion

As we know that the current rejection of autopsy is so high that the main reason is religion and humanity, so the experts are required to find a new method in the settlement of forensic autopsy case so that the dead cause can be known without dissection to the corpse so that justice can be kept steady but still honor corpse.

Virtual Autopsy as we know it already answers the challenge, that is with the minimally invasive method. In addition to the method that does not require a lot of virtual autopsy surgery also provides many benefits in solving forensic cases such as:

1. The time required for autopsy will be faster
2. 3D illustration and actual size documentation to facilitate communication,for example between attorney and forensic expert.

3. Data is stored digitally (3D image) on the computer and can be accessed at any time. This allows digital re-examination of the body and possible crimes such as in the case of retest/retrial.
4. Digital storage of the discovery of Virtopsy facilitates second-opinion by other forensic expert or institutes located anywhere in the world

In addition to the weaknesses above the obstacles of the virtual autopsy method that is almost all forensic specialist doctors are not ready to apply the virtual autopsy method, then still struck by the regulation of forensic doctor's policy system, radiology doctor. There is a debate on how this tool will be used by whom, then who is eligible for the writing of visum et repertum for forensic autopsy case, and how the collegium manages the curriculum in virtual autopsy learning.

From the analysis of the study we can conclude that almost all forensic doctors are not ready for virtual autopsy with various reasons that have been explained, this is because there is still no test of this tool, especially in Indonesia to prove that the use of virtual autopsy method can compete with conventional autopsy in terms of result and diagnosis.

So it takes a container such as a seminar or a workshop for the forensic doctor, and radiology doctor to be able to dissect how the benefits side, add insight about virtual autopsy method as a whole and consider how if the virtual autopsy method applied in Indonesia. And also to discuss how the regulation of the use of virtual autopsy method will be whether to cooperate between two disciplines or virtual autopsy method only for the forensic specialist doctor.

So it can be determined how to apply the virtual autopsy method to substitute the conventional autopsy or just as a means of autopsy investigation tool, no other purpose of virtual autopsy method is to answer the reason for rejection of autopsy

Although many benefits, a tool must have some weaknesses which cause obstacles to the application of virtual autopsies, such as:

1. Cost is quite expensive
2. In Indonesia,the tools such as CT-Scan and MRI are not evenly distributed in all places
3. Especially in Indonesia, there is no forensic radiologist

and give comfort especially the Islamic religion in honor of the corpse.

Conclusion

Forensic Specialist Doctor in Indonesia is still not ready in the procedure of using virtual autopsy if the virtual autopsy method is applied to forensic case resolution, with the most reason is still being the superior of conventional autopsy compared to the virtual autopsy method.

Knowledge of Forensic Specialist Doctor about the virtual autopsy method is good enough they already know the method, but still, do not know how to use tools from the virtual autopsy.

Conflict of Interest

None

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Unintentional injuries related mortality and morbidity among children1-59 months of age in Fars province, Iran

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Abstract

Now a day, unintentional injuries as one of the most important factors of non-communicable diseases play a key role in the mortality and morbidity of Iranian 1-59 months of age children. During recent years, several studies have been carried out in different parts of the country but different studies have different results that show the necessity of doing local researches to find local patterns of aforementioned injuries for policy making or intervening in order to solve the injuries problem.

By use of databases of Iranian Ministry of Health and Medical Education, data gathered during 2010 to 2015 has been used for mortality study and in case of morbidity, only data gathered in 2015 has been analyzed.

Of 1578 death events from 2010 to 2014 among the target population, the most important causes of death were “congenital malformation and deformation and chromosomal abnormalities”, “unintentional injuries” and “diseases of the nervous system”. In case of unintentional injuries, from 2010 to 2015, among the target population, 382 death events have been registered in which the most important causes of death were “Traffic accidents”, “Accidental drowning and submersion” and “Other accidental threat to breathing” respectively. 59.2% of them were male and most male victims (52.6%) were living in rural areas.

In case of unintentional injuries related morbidity, 5528 cases have been registered during the year 2015 in which 80.4% were in urban areas. The most vulnerable age group were children between 13-24 months of age. Homes had the greatest share among places of happened injuries. “Exposure to inanimate mechanical forces”, “falls” and “heat and hot substances” are the most frequent mechanisms of morbidity in the target population. Traffic accidents as the fourth mechanism of morbidity mostly occurred in children who were on board vehicles.

Keywords: Unintentional injuries; morbidity; mortality.

Introduction

The effect of unintentional injuries on global health situation is uncontroversial. Many studies which have been carried out all around the world, show that unintentional injuries are among the most important causes of mortality and morbidity and considered as a high rank in standing of non-communicable diseases (1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11). Year after year, the importance of these kinds of injuries are increasing so that in future we will face with the huge changes in significance of unintentional injuries if we insist on our current policies and beliefs (12)(13). In addition, unintentional injuries are increasingly used as a sign of poverty and deprivation and also socioeconomic disparities besides sexual and ethnical differences (4)(14).

In developed countries, injuries are the leading cause of death among preschool children (14)(11) but developing countries show a different pattern. In Pakistan, among children 1-5 years old, unintentional injuries are considered the third leading causes of death after diarrhea and pneumonia respectively (9). Generally, in Low and Middle-income countries communicable diseases play the main role in creating mortality and morbidity among preschool children. But in high-income countries, epidemiological transition as a result of successful control of communicable diseases along with rapid urbanization and sociodemographic changes cause that NCDs become the main cause of mortality and morbidity in population (1). Nowadays, in developing countries, the epidemiological transition is gradually making major changes in causes of death among preschool children and for this reason, injuries are gradually becoming the main cause of mortality and morbidity especially in low and middle-income countries (13).

In Iran, success in control of communicable diseases and other factors mentioned above caused a major shift in main causes of mortality and morbidity among different age groups of the population(15)[(4)]. A comparative study in Eastern Azerbaijan province showed a drastic change in mortality rate among children under 5 years old (16) so far as injuries have become the second cause of death in Iranian children under five years old (17) these changes are because of increasing number of unintentional injuries victims along with decreasing number of children who are dying because of other causes (6)(13). Increasing importance of these kinds of injuries causes a tendency in Iranian researchers to sift through epidemiology of unintentional injuries and publish numerous papers on death events in children under 5 years old at different times and areas (18)(15)(19)(20)(21)(22)(17)(23)(24)(16)(10)(25)(13). Now a day, Iranian health delivery system tries to improve health indices by making interventions against health problems (15)(26) like unintentional injuries. It needs precise studies to reveal patterns of external causes of mortality and morbidity in different parts of the country because different studies which have been carried out in different places and times have had different results so that a patchy pattern of external causes of unintentional injuries can be recognizable in various parts of the country. With this regard, this study tried to give its focus on mortality and morbidity of unintentional injuries in 1-59 months of age children in one of the biggest provinces of Iran which has one of the highest statistics of unintentional injuries in this age group of the Iranian population.

Material and Method

Iranian health delivery system is based on the efforts of 58 Universities of Medical Sciences and Health Services. Each of them covers some part of the country which is not necessarily according to country divisions; for instance, Fars province alone is covered by five independent universities. Shiraz, Fassa, Jahrom, Geraash and Lar University of Medical Sciences and Health Services.

In this study, two different data sets were used. The first data set is about non-fatal injuries and the second data set is about fatal events.

In order to gather data about morbidity related injuries, System of Accident Registry of the Ministry of Health and Medical Education was used. This system is based on a form which is comprised of items as follow:

- Age
- Sex
- Responsible university
- City in which injury occurred
- Month in which injury occurred
- The area in which injury occurred (rural or urban)
- Subarea in which injury occurred (home, street and so on)

These forms are gathered monthly and sent to an upper-hand center named University Health Center. Data gathered together based on ACCESS™ software and after some corrections, final version is uploaded to the portal of the Center of Non-Communicable Diseases. This dataset is based on ACCESS™ software and in Farsi. It has to be compatible with SPSS software and translated into English. Data gathered during 2015 has been used for research on unintentional injuries related morbidity in the target population.

There is another system for data gathering on fatal events in children 1-59 months of age. Death Registry System uses a bunch of data that is gathered together by University Health Centers and after some corrections, the final version is uploaded to MOH portal.

This form comprises items as follow:

- Name of responsible university
- Year of death
- Sex of deceased person
- The nationality of a deceased person
- The area in which accident occurred (rural and urban)
- Type of accident.

In the field, data is being gathered by EXCEL™ in Farsi, therefore for this study, it was necessary to translate it into English and use suitable computer software (SPSS™ version 22) for further analysis. In this study, data from 2010 to 2015 was used for estimating required variables. For categorizing the type of accidents in both cases, International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) has been used.

For further comparison and also for estimating target population size, data which was gathered and published by Registrar-General for Fars province was used.

On every occasion when we needed to consider the size of the target population especially in the study of mortalities, the formula which hasbeen used was:
$P_n=P_o\ (1+r)^n$
In which:
P_n is an estimation of population in the desired year
P_o is population estimated by National Census Program accomplished at 2011
R is annual population growth that was considered equal to 0.01179
n is an interval between reference year and the desired year

Results

Mortality:

The population of 0-5 years old children in 2011 in Fars province has been reported officially 363,941 that the number of the target population was estimated as 283,093 in which 144,946 males (51.2%) and 138,147 females (48.8%).
The total death events in the result of unintentional injuries which were registered in Ministry of Health Death Registry System was 382. The break down by variables has been estimated as follows:

Sex: 226 were male (59.2%) and 156 (40.8%) were female.

Age: children between 1-12 months of age are the largest group of deceased person in the target population.
Place of death: 50.8% death events have occurred in rural areas that in which 59.8% were male and obviously 40.2% were female. In urban areas, 58.8% of mortalities related to unintentional injuries occurred in young males.

Most of the death events have been registered in place of accident occurrence (35.4%) (Table 1).

Table1: Place of mortalities related to unintentional injuries in children with 1-59 months of age, Fars province, Iran, 2010-2015

Place of death	frequency	percent
Just in place	119	35.4
During convey to hospital	38	11.3
In hospital	110	32.7
In home	69	20.5
Total	336	100

Time: Frequency of death events in springtime was more than other seasons during the years of study. Causes of death: Totally, the leading cause of death in relation with unintentional injuries were "traffic accidents" (43.6%). The second and third important external causes of death in target population are "Accidental Drowning and Submersion" (17.0%) and "Other Accidental Threat to Breathing" (13.8%).

Morbidity:

In 2015, according to the Ministry of Health registry system, 5528 suffered from unintentional injuries related morbidity. The break down by variables has been calculated as follows:

Sex: Unintentional injuries related morbidity occurred mostly in male children (60.3%) than 79.9% were living in urban areas (Table 2)

Table2: Distribution of unintentional injuries related morbidity by sex and place of occurrence among children 1-59 months of age in 2015, Fars province, Iran (*Data of 18 cases were not applicable)

	Male	Female	Total
Urban	2655 (59.9%)	1775 (40.1%)	4430 (80.4%)
Rural	668 (61.9%)	412 (38.1%)	1080 (19.6%)
Total	3323 (60.3%)	2187 (39.7%)	5510 (100%)*

Age: children between 1-12 months of age are the most vulnerable age group among the target population. Fifty percent of all morbidities related to unintentional injuries in the year of study have occurred in children between 1-24 months of age. Place of occurrence: Most of the morbidities related to unintentional injuries occurred in urban areas (Table 2) and in Homes (Table 3).

Table3: Place of occurrence of unintentional injuries in children with 1-59 months of age, Fars Province, Iran, 2015.

Place of occurrence	Frequency	percent
Homes	4047	73.2
Streets and alleys	803	14.5
Roads and highways	222	4.0
Playgrounds	160	2.9
Public places	79	1.4
Work places	32	0.6
Educational places	30	0.5
Others	120	2.2
Not applicable	33	0.6
Total	5526	100

Type of accidents: "Exposure to inanimate mechanical forces" is the most frequent mechanisms (27.6%). "Falls" (22%) and "Heat and hot substances" (18.5%) are the second and the third important morbidity mechanism among the target population. Traffic accidents are the fourth morbidity related external causes of the aforementioned injuries in which most of them occurred in children who were on board vehicles.

Discussion

Table 4 shows information about death events in the target population during the study period. Both total death rate and death rate related to unintentional injuries show a slight reduction from 2010 to 2015 in spite of some fluctuations happened in between. The lowest unintentional injuries related mortality rate was in 2015 and the highest was in 2012. Fluctuation in death number related to unintentional injuries is consistent with the total death number of target population during the study period.

Table 4: Number of death events and death rate among the target population during the study period, Fars province, Iran, 2010-2015

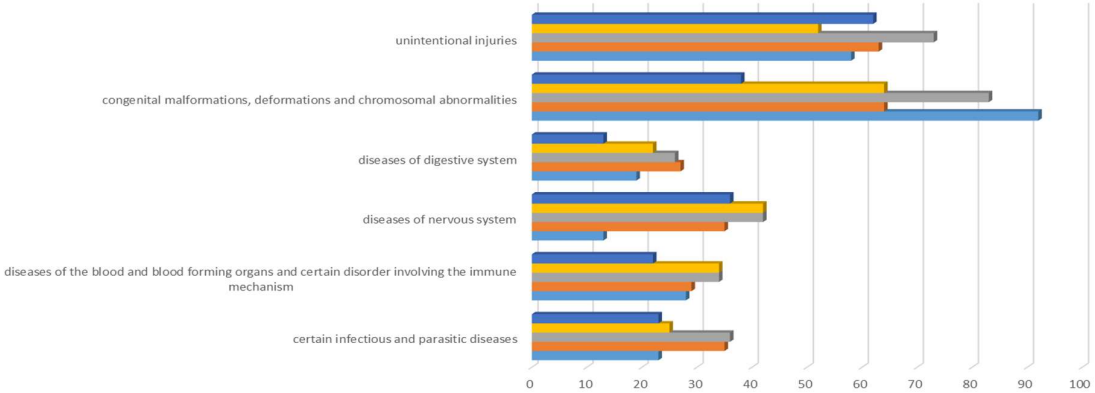
year	Total population	No of live birth	Total death number (1-59 months of age)	Death rate per 1000 live birth	Mortality related unintentional injuries in the target population	Death rate per 1000 live births
2010	4.357.000	81,867	309	3.77	58	0.71
2011	4,597,000	80,848	340	4.21	69	0.85
2012	4,642,000	82,736	378	4.57	77	0.93
2013	4,688,000	82,407	307	3.73	62	0.75
2014	4,735,000	87,264	244	2.80	70	0.80
2015	4,782,000	88,790	263	2.96	46	0.52

Our results show that in 2010 the first three important causes of mortality among target population are "congenital deformation, malformation, and chromosomal abnormalities", "unintentional injuries" and "diseases of the blood and blood-forming organs". This situation faced

with a change in 2011 that in which both “certain infectious and parasitic disease” and “diseases of the nervous system” took the third place of important external causes of death. Although during 2012 and 2013 a stability in situation could be seen in which “congenital deformation, malformation and chromosomal abnormalities”, “unintentional injuries” and “diseases of nervous system” were the first three external causes of death in target population, in 2014 position of the first and second external causes of death changed (fig. 1) which is similar to the result of a study carried out in 2001 in Fars province among same target population (22). All in all, it can be claimed that of 1578 death events during period 2010 to 2014, the first three causes of death among target population are “congenital deformation, malformation, and chromosomal abnormalities”, “unintentional injuries” and “diseases of nervous system”, respectively that is different from some other studies which considered the situation all around the country (17)(27). Other causes of death among target population comprise “diseases of blood and blood-forming organs”, “certain infectious and parasitic diseases” and “diseases of digestive system” as the fourth to sixth important causes of death, respectively. Contradictions in the results of different researches in time and place can be seen not only in country setting but also in local settings. In Zabol, a city which is situated in the south-east of Iran, the most common causes of death have been “unintentional injuries” (27%), “respiratory diseases” (18.3%) and “diseases of digestive system” (15.2%) (28) (26). Unlike Zabol, in Ardabil province which is located in North West of Iran, death pattern among children with 1-59 months of age was “congenital deformation, malformation, and chromosomal abnormalities”,

External causes of death in our study shows a deep difference with findings of previous studies. In the west of Iran among children under 6, the most common external causes of death are “falls” and “road traffic accidents” (21). Iranian Legal Medicine Organization have shown that from 1996 to 1999 “traffic accidents” and “burn” have comprised more than 70% of death events among children under 12 years old in Tehran (23). Trauma fatality in 100 hospitals in Tehran showed that “unintentional injuries” and “infections”, respectively (18). In east and north of Tehran, most of the death events in same target population were because of “congenital deformation, malformation, and chromosomal abnormalities” (17.5%), “unintentional injuries” (15.4%) and “cancers” (11.2%) (25).

These changes in main causes of death among children 1-59 months of age in different parts of the country and at different times can also be seen in important external causes of death. Of course, the pattern of “traffic accidents”, “burns” and “others” are the three main external causes of death among 1-4 years old children (10). Another study which is carried out in North and East of Tehran showed that 70 percent of all death in children 1-59 months of age have occurred in result of “traffic accidents” (29.1%), “falls” (15.5%), “other accidental threat to breathing” (15.5%) and “accidental drowning and submersion” (13.6%) (19). These are totally different from our study results which showed “traffic accidents”,



	certain infectious and parasitic diseases	diseases of the blood and blood forming organs and certain disorder involving the immune mechanism	diseases of nervous system	diseases of digestive system	congenital malformations, deformations and chromosomal abnormalities	unintentional injuries
2014	23	22	36	13	38	62
2013	25	34	42	22	64	52
2012	36	34	42	26	83	73
2011	35	29	35	27	64	63
2010	23	28	13	19	92	58

"accidental drowning and submersion" and "other accidental threat to breathing" as the first three important external causes of death in the target population. Of course like any other studies, young boys are the most vulnerable sex group in the target population.

injuries related morbidity have been registered in urban areas and most of them have occurred in homes. Majority of the victims were children 1-12 months of age. But like mortality studies, results of morbidity researches in different parts of the country show different results. In north of Iran "traffic accidents" are the most frequent cause of hospitalization among children 6-11 years old, compare to other age groups of population, "falls" have frequently occurred in children with 1-5 years of age therefore three main causes of morbidity among children 1-5 years old are "traffic accidents", "falls" and "others" (13) on the contrary in Mazandaran one of the three northern Iranian provinces "falls", "burns" and "traffic accidents" are the most important external causes of morbidity among children under 6 years old (20) . In Ahvaz, a city located in south-west of Iran, it has been claimed that prevalence of morbidity related unintentional injuries among children under 5 years old was 40% and frequent external causes of death comprised "falls", "other accidental threat for breathing", "contact with heat and hot substances" and "accidental poisoning by exposure to noxious substances" (29). These findings are entirely different from ours that in which the most frequent external causes of morbidity among target population are "exposure to inanimate mechanical forces", "falls" and "heat and hot substances".

Conclusion

Unintentional injuries are the most important causes of mortality and morbidity among Iranian population for this reason every effort to promote the health status of the community especially about children with 1-59 months of age would not be successful without considering unintentional injuries. Rifling through references and sifting through their results shows that a patchy pattern of external causes of mortality and morbidity can be discernible all around the country, therefore, making any policy or any approach in order to solve the problem of injuries in a certain part of the country needs precise study in the same time and space. This study shows the distribution of unintentional injuries related mortality and morbidity by sex, age, place of accident occurrence and mechanism. It reveals not a gradual change in causes of mortality and morbidity in children with

Generally, most of the unintentionalinjury-related morbidities are in result of home injuries and the largest group, in this case, are children under 5 years old. This pattern is similar to patterns seen in other countries (24). Our study also shows that approximately 80% of 5528 cases of unintentional

1-59 months of age from time to time but also the importance of unintentional injuries in the health status of children in the Iranian context.

Conflict of Interest

None

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Cannabis - Mythological aspects & its medicolegal issues in current medical practice

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Abstract

Cannabis is the earliest mind-altering drug known to man and has been around for at least 4000 years. Due to its so prolonged ancient availability and multiple possible uses, many mythological Gods all over in different religions are found associated to legitimize its commercial use as a drug of addiction all over the world. The intoxication produced by Cannabis is of the most cheerful kind causing the individual to sing & dance, to eat food with great relish & to seek sensuous enjoyment. Cannabis is easily available as it grows in wild & forests all over India, and easy to identify & simple to prepare for addiction without any laboratory.

Keywords: Cannabis, Marijuana; Mythology; Run amok; Amotivational syndrome; railroad poisoning victims; thugee; criminal responsibility.

Introduction

Asterion: Greek God of Cannabis (1)
Lord Shiva: Indian God of Cannabis (2)
Maggu: Chinese God of Cannabis (3)

Mythological importance of bathing Lord Shiva with lots of water on Shivratri (Holy night of Lord Shiva):

Lord Shiva is famous as the lord fond of poisonous reptiles (snake coil around the neck of Lord Shiva, scorpion, centipede) & Poisonous plants – Cannabis, Calotropis, Opium etc. In Indian mythology- Lord Shiva celebrates with his followers by drinking Bhaang thandaai, eating Majun sweets & smoking Charas &Gaanja(2)Chronic, heavy marijuana use is associated with a clinical syndrome comprised of abdominal discomfort, nausea, and hyperemesis. Symptoms are often refractory to opioids and antiemetic. The hallmark of the Cannabinoid Hyperemesis syndrome(CHS) is almost immediate relief of symptoms with bathing or showering in hot water, and a major diagnostic feature is compulsive bathing (2). So to please the LordShiva, all Shaiv followers must pour water on idols of Shivlinga during worship in the temples (2). The logic of pouring water can be explained based on scientific studies on cannabis overdosed, the person is detoxified from the suffering of toxic hyperemesis & comes out of trance state to hear the plea of his worshipers, thus blessing them boons & wishes they desired.

Ongoing Pilot study of Hydrotherapy in detoxifying Cannabis overdose: Cannabis is most commonly consumed during Festival day of Holi & Shiv Ratri (4). 18 patients reported in our Hospital ER with complaints of nausea, recurrent vomiting (hyperemesis), Ghabrahat, hypertension & anxiety after cannabis overdose (smoking Ganja, eating Bhang & its sweets & drinks). 8 patients volunteered for participation in the prospective study. Hydrotherapy is one of the naturopathic treatment modality used widely in ancient cultures including India, Egypt, China (5). 4 out of 6 patients after hydrotherapy (sponge bath with lukewarm water), antiemetic & antianxiety drugs showed more rapid relief from nausea & vomiting, reduction in heart rate, and decrease in systolic Blood pressure, with increased feelings of well-being and decreased state of anxiety, than 2 patients who received antiemetic & antianxiety drugs without hydrotherapy.

Cannabinoid Hyperemesis Syndrome:
Chronic, heavy marijuana use is associated with a clinical syndrome comprised of abdominal

discomfort, nausea, and hyperemesis. Symptoms are often refractory to narcotic opioids and antiemetic. The hallmark of the Cannabinoid Hyperemesis syndrome is almost immediate relief of symptoms with bathing or showering (6). The pathophysiology of this syndrome is unclear. However, relief with hydrotherapy may indicate dysfunction of pain perception, excess substance P release, and activation of TRPV1 (a G protein receptor that has been shown to interact with the endocannabinoid system and is the only known capsaicin receptor); these may play a role in elucidating the mechanism for this syndrome (6).

Q. Why children & youth get so fond of Noodles, once they eat it?

"Maggi" derived from word "Maggu"

"Maggu"aka "Magu" - Chinese Goddess of Longevity, literally: "Hemp Maiden"Maggu's name is a compound word which has two common Chinese words:

Ma "cannabis; hemp" & Ggu- "aunt; maid" (3). Noodles were suspected to have cannabis or similar addictive compounds. On 05 June 2015, Maggi Noodle samples were collected by India food safety regulator-Food Safety & Standard Authority of India(FSSAI)- stated that laboratory tests found overwhelming evidence that Nestlé's Maggi instant noodle products are " unsafe & hazardous" for human consumption (7).

Maggi Noodle scare (7) -Why Maggi was banned recently?

"Maggi" noodles – India-recently banned in 2015 (7) - suspected to have cannabis or similar addictive/ carcinogenic compounds in the Chinese salt with unknown composition, causing "involuntary addiction" among children & youth eating it. So the consumer craves for eating more of noodles, whenever he wishes to eat anything. This seems like the commercial utilization of the compulsive eating of a particular dish, due to the cannabis extract in it.

What is "Bhola Munakka & Madhur Munakka" chocolates (8)?

It was a brand of chocolate, sold in Bombay, near schools. It used to cause intense cravings among children for its euphoric effects, and the seller made lots of profit by selling it with increased costs on high demand. A death of a child in school after eating multiple chocolates lead to police probe & chemical analysis- rich in THC. Bhola – the name itself suggest a link to cannabis & opium. Chocolate was banned & seller arrested in NDPS act (8).

Why is Lord Shiva also known as Bhola, Bholenath, Bhole Bandaari?Lord Shiva is fond of cannabis consumption, and cannabis smoking, drinking & eating produces trance-like state, in which the person feels happy & content, get vivid dreams, eat, sing & dance freely, feels at home & behaves like a child anywhere, anytime with anyone, even with complete strangers.

So, the cannabis consumer will not refuse anything to do or eat, and obeys everyone happily- all features of Nave, imbecile & Gullible- means "Bhola", who can give boons to anyone who worships him, even to demons like Raavan & Bhasmasur (9).

How Criminals hypnotize by drugging victims with cannabis:

This effect of cannabis is misused by criminals like robbers, who visit homes in dress of sadhu when housewives are alone, give blessings, ask for food & give intoxicated prasad in exchange, sing songs, and once the victim gets intoxicated, then they ask them to handover all their precious ornaments, mobile & purse.

- The intoxicated victim behaves Nave & Gullible ("Bhola") like a generous child, handover everything happily in exchange for more of the sweet prasaad eaten, as if playing a childish game. And later victim recall the episode of theft as if she was hypnotized by the robber.
- Indian thieves robbing in forests by drugging were called Thugs and their infamous act = thuggi(10).
- Many thefts are reported every year at Behror in Delhi Jaipur Highway by using cannabis for stupefying businessman by drinking "behror's tea".

So, a public warning notice is placed on Indian railways & roadways: "Travelers are warned: Do not consume drinks or food shared from unknown co-passengers".

Run amok (11) - killing spree under cannabis influence (12) – "Not an act of terrorism"- criminally not responsible -Section 85 IPC.

Section 85 IPC- Act of a person incapable of judgment by reason of intoxication caused against his will (13).

Q. Why frequent mass gun firing in the USA is not considered as an act by terrorists?

Modern Run amok – Gun Firing & Mass Killing

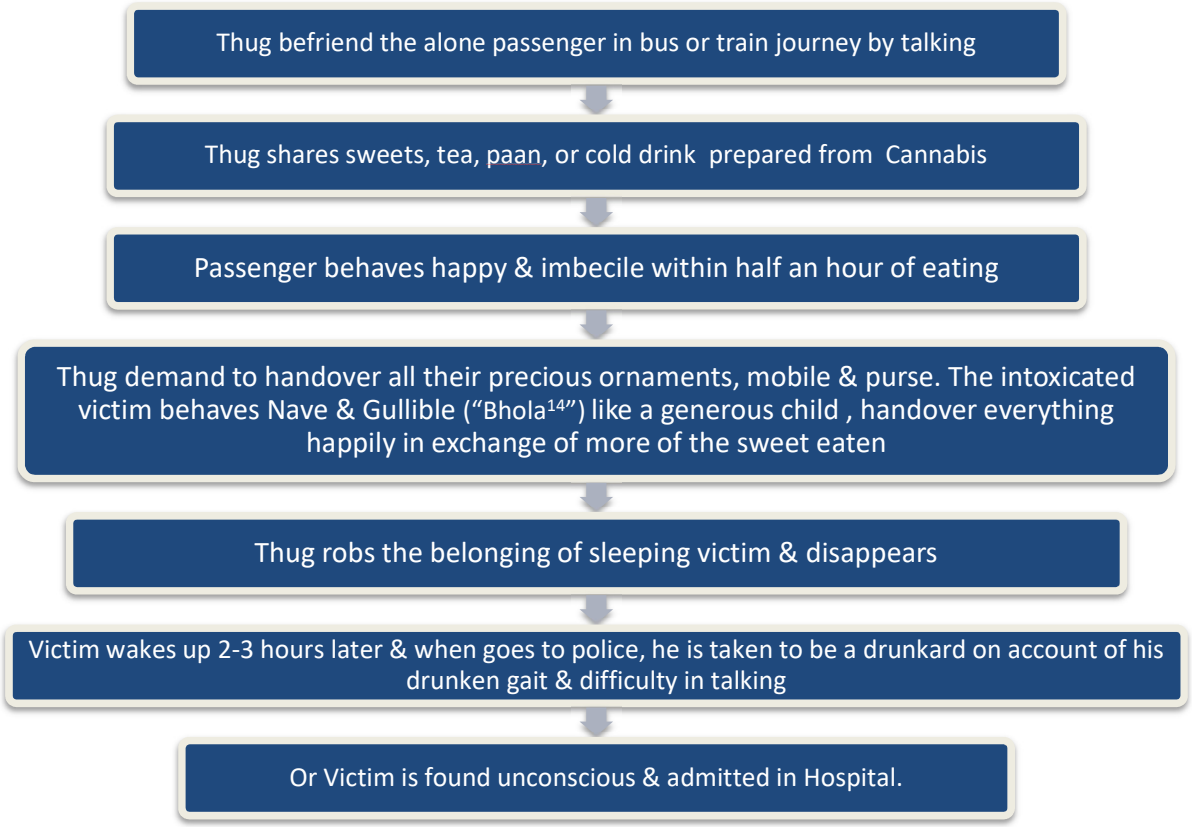

Fig. 1. The scenario in Rail-road poisoning

innocent victims-

No act of terrorism (14). "there were no indications to suggest the shooting was terror-related and the suspects had a string of previous convictions, for marijuana possession, driving under the influence and battery after marijuana consumption" (14).

Nov 5, 2017 - A gunman opened fire at a rural church outside San Antonio, killing at least 26 — including several children.

Oct 1, 2017- At least 58 dead, more than 515 injured after shooting at Las Vegas Strip music festival (14).

As per Indian mythology, Lord Shiva stays on Himalaya- the land of Black gold- cannabis crops, with his followers by drinking bhaang, eating majun sweets & smoking Charas & Gaanja (9). As per Shiv Puran, Lord Shiva goes on a killing spree after Sati's suicide (9) In Indian mythology, the story goes that Sati marries Shiva against the wishes of her father, Daksha. In retaliation, Daksha organizes a fire-sacrifice or yagna and invites all his sons-in-lawexcept Shiva, to partake of the ritual. Angry at the exclusion of her husband, Sati rushes into the sacrificial precinct and confronts her father, who mocks Shiva's ascetic ways in front of all the assembled guests. Unable to bear this public humiliation, Sati kills herself by leaping into the sacrificial fire thereby polluting the ritual space and causing the yagna to grind to a halt. When Shiva learns of this event, he experiences deep rage and sorrow. Casting away his usual calm indifference, he transforms into a fierce killer, and goes on a rampage attacking everyone who had been silent witnesses to Sati's death & Daksha is beheaded. But the vengeance does not take away the sorrow – Shiva then dances around the world carrying the charred remains of Sati's corpse, killing everyone around (Taandav dance) (2).

Amotivational syndrome is a psychological condition associated with diminished inspiration to participate in social situations and activities, with episodes of apathy caused by an external event, situation, substance (or lack of), relationship (or lack of), or

other cause. Chronic indulgence is said to induce an amotivational syndrome characterized by apathy, social withdrawal, and lack of motivation to work (11). It can be interpreted in mythological story of Shiv & Annapurna when after Sati's death, Goddess Annapurna (who was believed to be incarnation of Sati's rebirth) transforms Shiva, the hermit residing in the Himalayas, into Shankara, the householder and bring him back to live social life with family & friends (2).

Why should we read & learn about cannabis? Cannabis is the most widely produced and consumed illicit drug in the world with global numbers of users approaching 182.5 million (3.8% of global population).

Why it's illegal using Cannabis?
Use & cultivation of cannabis is prohibited in India & violation is covered by the Narcotic Drugs& Psychotropic substance act 1985 (15).

How to easy recall about Marijuana toxicity?
Mari-Ju-Ana (mnemonic)
Mari- Merry mood of the abuser
Ju- Jute rope burn odor
Ana- Anandamide receptor responds in brain to cannabis consumption.

Conflict of Interest:
None

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Medical Negligence- Legal narrative & its prevention in Modern Medical Practice

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Abstract

The noble Medical profession is increasingly getting caught in the quandary of changing times. The faux pas of doctors, accidental or otherwise, are subject to vituperative attacks by patients, media and is under intense scrutiny of Courts. The exclusion of Medical man from the time honored dictum 'to err is human' is a distinct reality these days. The judicial course, in cases of medical negligence, can be both criminal and civil law suit. Medical negligence is usually covered under laws of torts. Of late, Courts have been severe in awarding damages. The financial compensation in such cases is governed by principle of 'Restitutio in integrum'. The repugnancy in award of huge compensation is the result of subjective approach, and not the objective methods, as followed by honorable Courts. Majority of times, doctors are themselves roily about the legal process. The legal process is dictated by judges who apply the legal principles of prudence and reasonableness. The doctrinal shift from 'Bolam' to 'Bolitho' and finally to 'Montogomery' is significant. It indicates changed times where patient empowerment is being given due consideration and their rights are being acknowledged by courts. The conduct of 'Reasonable man', as per Bolam case, is being replaced by paradigm of 'Logical analysis' and 'Risk analysis' by courts. Indian courts are also fast adopting this changed approach in accordance with Western judicial system. Doctors must acquaint themselves with finer points of jurisprudence in these cases.

Keywords: Medical negligence; Bolam; Bolitho; Montgomery.

Introduction

Modern medical practice has evolved over the time and has brought in various dimensions than merely the delivery of care. The legal and ethical dimensions assume much importance these days. The respect and gratitude expressed by patients towards doctors till few decades ago, cognate with this *noble* profession is on the wane. The good old doctor who was both affable and infallible is constantly subjected to scrutiny for every error perceived by patient. It is quite apparent that exclusion of doctors is almost complete from the time honored dictum of *'to err is human'* these days. This increased incidence, with which patients are dragging doctors to courts, bears testimony to this disturbing trend.

Another important, perhaps the most important, dimension related to the cases of medical negligence is legal system. It completes the Doctor-patient- court triangle which draws analogy to epidemiological triangle of agent-host-environment. Cases related to medical negligence when brought to the courts will be decided by honorable judges. These wise men are laypersons in their evaluation of medical processes, procedures and decisions taken by doctors. They rely on the opinion of experts and indeed this has

been the case so far. Of late judiciary has decided not to place absolute reliance on expert opinion but to apply its own discretion in deciding the outcome. This paper will specifically bring out this dimension. Judges apply the principles of reasonableness and prudence. This will bring on element of subjectivity and not objectivity.

The important fact is that every act of perceived medical error has potential to be treated as a case of medical negligence, by patient or his attendants, and may be dragged to courts. With this reckoning, it is incumbent upon doctors to be prepared for this eventuality. Doctors are not formally trained in the legal process. Whatever little training doctors receive during their formative years is very easily forgotten in preference to acquisition of clinical skills.

This paper attempts to interpret finer points of the court judgements related to medical negligence with special emphasis on ensuing legal process.

Negligence

Ratanlal and Dhirajlal (1), in their pioneer work 'Law of Torts', have described negligence as *'the breach of a duty caused by the omission to do something which a reasonable man, guided by those considerations which ordinarily regulate the conduct of human affairs would do, or doing something which a prudent and reasonable man would not do'.*

As per this definition, three constituents of negligence are

(a) A legal ***duty*** to exercise due care on the part of the party complained of towards the party complaining the former's conduct within the scope of the duty.

(b) The ***breach*** of the said duty.

(c) finally the consequential ***damage***.

Doctors must understand that cause of action for negligence, in pure legal terms, can only arise when damage occurs, for damage is desideratum of this civil wrong. Medical negligence is covered under the laws of torts. A tort is a wrongful injury, private or civil wrong. Torts may be intentional (when the professional intends to violate legal duty) or negligent (when the professional fails to exercise the proper standard of care established by law).

If a doctor is in therapeutic relationship with his patient, in exchange of a consideration, it is established with certainty that duty of care is owed. It must be understood that a doctor does not owe legal duty of care to a stranger. However, in few countries (Singapore) it is ethically incumbent on doctor to attend a sick person when he is called to do so. In India, a doctor is free to choose patient whom he can render his services, but he should, however, respond to any request for his assistance in an emergency (2).

Other pertinent query would be when the duty starts and when does it terminates. A patient may terminate doctor- patient relationship at any point of time unilaterally but law restricts such behaviour by a doctor. Law assumes that a doctor is duty bound, both ethically and legally, to ensure that care of patient is transferred to an equally qualified peer before this relationship is brought to an end. Failure to do so amounts to abandoning of patient which may invite punitive action.

In cases involving medical negligence, the burden of proving the breach of duty is incumbent on ***plaintiff*** (patient), and ***not on doctor*** (defendant), and he must prove beyond any doubt that care rendered to him was below the standard established by law. It must be noted that standard of care will be decided by application of Bolam test which, in pure logical terms, is the standard of care determined by a group of accepted jury of experts. In such situations, court will not just accept the standard as articulated by these experts but also exercise its own critical analysis to see if the standard articulated can stand the 'logical analysis' and 'risk analysis'.

Further plaintiff must prove that damage suffered by him was solely due to negligent act by defendant. The court often uses the 'but for' test. The court deliberates on would the claimant have suffered the damage ***but for*** the negligent act of doctor. If the answer is yes, then there may be other causes for the unfortunate outcome and defendant is not liable and will be absolved of the plaintiff's charge.

Degrees of negligence (3)

Honourable Delhi High Court, while delivering a judgement in 2005, made a differentiation between the degrees of negligence and its culpability

(a) ***Lata culpa*** (gross neglect).

(b) ***Levis culpa*** (ordinary neglect)

(c) ***Levissima culpa*** (slight neglect)

Defendant will not be punishable for slight and ordinary neglect cases however he will definitely be punishable for the cases with gross neglect. Legally a doctor may not be punishable for an act of ordinary and slight neglect he is still liable under the ethical consideration (2).

Civil and criminal negligence

The liability of the plaintiff can be civil or criminal or both. The differentiating feature is the element of evil intent (***Mens rea***). The tipping point for the award of criminal liability is indeed the evil intent, the deliberate effort on part of doctor to harm the patient, which a plaintiff must prove unequivocally. In Jacob Mathew case, the doctors and hospital staff did not deliberately used the empty oxygen cylinder. There was no evil intent hence no criminal liability however they may be liable under Civil law.

In Dr. Suresh Gupta case the courts have held that simple lack of care, error of judgment, or a death is not proof of negligence and that failure to use special or extraordinary precautions that might have prevented a particular incidence cannot be the standard for judging alleged medical negligence. Doctors must not be harassed by initiating the criminal proceedings as a routine which may prove to be counterproductive in long term, as doctors will be hesitant in providing care to terminally ill patient just to avoid getting sued in case of a fatal outcome.

Civil liability and compensation

With the guarded approach by Indian Courts in establishing criminal liability it is customary for doctors to understand another important element of jurisprudence ie civil liability and consequent award of financial compensation. In Kunal Saha case (4), a sum of 11 crores was awarded to husband of deceased due to act of negligence by doctors. Although impact of large compensation may be deterrence yet it may promote defensive practice and consequent high health care costs. In India, where out of pocket expenditure is unacceptably high (64.2% of total health expenditure (5)), this increased cost will be borne by patients.

Calculation of compensation

The underlying legal principle for calculation of compensation is ***'Restitutio in integrum'***. It entails that person seeking damages due to wrong committed to him is in the position that he would have been had the wrong not been committed. There has been huge unpredictability in the award of the compensation on which Supreme Court has expressed its concern (6). For the sake of uniformity and predictability in deciding of compensation there is support for adopting multiplier formula, given below, which was created in award of compensation in case of victims of motor accidents.

(70- Age) X Annual income+ 30% for inflation-1/3 for expenses (7).

This formula has its limitations as it takes into account only the annual income of the victim. Supreme Court has refused to restrict compensation solely on the basis of this formula (4)(8). It has included other dimensions for calculation of compensation such as the medical costs incurred by the victim during the litigation, cost of future medical expenses, compensation toward mental agony and physical pain and compensation toward loss of consortium and cost of litigation.

Paradigm shift in Legal narrative

The moot point in cases related to medical negligence is whether or not defendant (doctor) practiced in accordance with the standard of care as established by law. This is based on the principle that a doctor does not breach the legal standard of

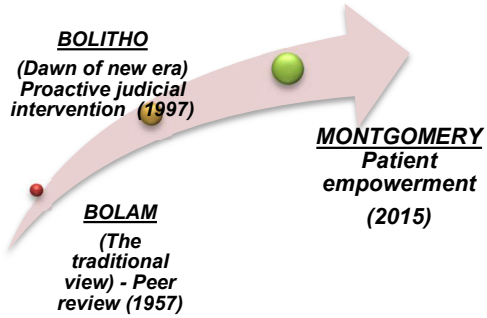

Fig 1. Shift in medical negligence litigation

care, and is therefore not negligent, if the practice is supported by a responsible body professionals (9)in similar field. The standard desired to be followed is of 'reasonable care' which is also known as ***'Bolam test'***. It is valuable in determining the breach in the duty owed to plaintiff by doctor.

Facts- Bolam case

Mr. John Hector Bolam was a voluntary patient at Friern Hospital, a mental health institution in England. He agreed to undergo ECT for clinical depression. He was not given any muscle relaxants and his body was not restrained during the

procedure as at that time the medical opinion differed on how best to minimize the risk of injuries possible from convulsions induced by ECT.

In Mr. Bolam's case, the technique of manual restraint was ineffective. As a result, he suffered serious injuries including fracture of acetabula. He subsequently pleaded against the breach of the standard of care in providing treatment and alleged that the hospital had been negligent. His contention was on three counts, namely non-administration of muscle relaxants, not restraining during the procedure and finally not warning him about the risks involved. Mr. Justice McNair J concurred with the opinion of an expert witness. Medical opinion, at that time, was opposed to the use of relaxant drugs. Manual restraint has the proclivity to increase chances of fractures. Further, at that time it was a common practice of the profession to not warn patients of the trivial risks associated with a procedure unless asked specifically by the patient. It was held that

In the ordinary case which does not involve any special skill, negligence in law means a failure to do some act which a reasonable man in the circumstances would do, or the doing of some act which a reasonable man in the circumstances would not do; and if that failure or the doing of that act results in injury, then there is a cause of action. Thus, the understanding of negligence hinges on the 'reasonable man' (10).

The Reasonable man (10)
It has been held by the courts that the test of reasonableness is that of the 'ordinary man' or also called as the 'reasonable man'. In Bolam case, it was stated that:
In an ordinary case, it is generally said you judge it by the action of the man in the street. He is the ordinary man. In one case it has been said you judge it by the conduct of the man on the top of a '**Clapham omnibus**'. He is the ordinary man.

The mention of 'Clapham omnibus' deserves a mention. The Bolam judgment was pronounced in 1957 and Clapham, at that time, was a nondescript south London suburb. It represented "ordinary" London. Omnibus was used at that time for the public bus. Thus, "the man on the top of a Clapham omnibus" was a hypothetical person, who was reasonably educated and intelligent but was a non-specialist. The courts used to judge the conduct of any defendant by comparing it with that of the hypothetical ordinary man.

Criticism of Bolam test(9)

Bolam test doesn't make a distinction between what is done and what is desired to be done. It allows medical fraternity to set the legal standard for themselves by eliciting the support of 'a responsible body of peers. This is clearly not the case in other areas of professional liability, where the expected standard of the defendant is set by the court. Courts are increasingly becoming uncomfortable when medical bodies, through Bolam test, are allowed to set the standard of care which will decide the fairness of conduct of doctor. Critics have argued that the court should set the standard in such cases, rather than a body of medical opinion, no matter how responsible or authoritative. It is argued that such an approach is excessively deferential to medical opinion and doesn't disclose much of the information to the patient about the course of treatment and his participation in the decision-making process. As a result, after about four decades of Bolam judgment, Bolitho happened.

Bolitho (dawn of new era) - Proactive judicial intervention (9)Bolitho was a clinical negligence case that reached the House of Lords in the UK. The central legal issue was whether or not non-intervention by a doctor caused the plaintiff's injury.

Facts
Patrick Bolitho, a two-year-old child, suffered irreversible brain damage as a result of cardiac arrest due to respiratory failure. The doctor, on call, didn't attend to the patient. It was believed that medical intervention will not affect the outcome in this case. The opinion of the respected body of experts was sought, which supported the course of action taken by the doctor. However, contrary to the approach of courts in past, Mr. Justice Lord Browne-Wilkinson did not accept this opinion.

Clearly, Court wanted to look beyond Bolam and desired to proactively examine the case on its merits and the standard of care as required by law. It also displayed its resolve to adopt a more interventionist approach in deciding on the standard of care and not merely depending on expert opinion alone. At the first stage, the courts will assess whether the view of experts was based on an approach that was structured, reasoned and defensible. It must withstand 'logical analysis'. The second stage, this is where Bolitho distinguishes itself, is to assess a 'risk analysis' which weighs the risk of competing decisions. In undertaking such an analysis, the court will look at a number of factors, including the magnitude of the risk, the

comparative risks of alternative interventions and treatments, the seriousness of the consequences, the ease by which the risk might be avoided, and the implications of such avoidance in terms of finances and resources of healthcare. Indian courts have followed suit and have applied Bolitho at least on two occasions (11).

Montgomery- patient empowerment

Till now, it was not legally binding on the doctor to disclose all the risks associated with a medical procedure to the patient. Montgomery changed it all. Mr. Justice Stephens, on 28 May 2015, opined in Montgomery v Lanarkshire Health Board case which essentially deals with finer aspects of Informed consent. It essentially states that the Bolam test has no impact on what a doctor should inform the patient about his disease.

Facts

Mrs. Montgomery, a pregnant lady, suffered from diabetes and as a consequence, there was 9-10% risk of shoulder dystocia during vaginal delivery. She was not told of this risk simply because she didn't ask for it specifically. Eventually, during vaginal delivery, shoulder dystocia did occur. It took 12 minutes for doctors to manage this anomaly. The child was born with cerebral palsy.

One would suggest that Bolam can be applied in this situation as the risk of shoulder dystocia was not informed to the patient as there was a trivial chance of it happening and more importantly patient did not ask for it. However, it was argued, in this case, that an adult patient of sound mind must be disclosed all the risks in an objective manner. The rights of the patient must be respected and he/she must be allowed to make an informed choice. The notion in the present case was that the responsibility for determining the nature and extent of the person's rights rest with the courts, not with the doctors. This is indeed a paradigm shift in the overall ambit of litigation related to medical negligence.

Conclusion

How to avoid being sued (12)

Communication. It is the most important measure. Communication must be ensured not only between doctor and patients but among doctors as well. It is well to remember that while dealing with a patient, the bottom line for any doctor should, infact, to be *'patient'*. Every effort must be made to communicate with the patient in his language so that he participates in the medical decisions making process. This will avoid medical negligence at a later stage. To ensure continuity of care, good communication within teams and between teams and in particular between primary and secondary care is essential.

Documentation. Explicit, unambiguous documentation will come in handy if one ever needs to recount a certain situation and justify what occurred in order to defend one's actions. Conversely, inadequate or indefinite documentation leaves one susceptible to a malpractice lawsuit. One must write legibly, append date, time and sign every entry, specifically identify the people in the report, record all findings, advice, instructions, decisions, etc. on any significant issues. Even If one isn't sure whether or not it's important enough to be documented, the golden principle is- document it.

Medical records. Medical records are to be kept meticulously, as per the legal requirements. Legible clinical notes with relevant clinical details, particularly depicting the decision-making process are advantageous at a later date when the doctor is summoned to the court of law.

Informed consent(2). Operating on a patient without informed consent from the patient or guardian is a sure precursor of a malpractice lawsuit. It is essential to discuss all elements of a procedure, its risks, costs, etc. before the procedure. Doctors must acknowledge its importance in their daily practice.

Constant knowledge update. Medical practice is dynamic and is constantly evolving. Using outdated techniques inevitably makes practitioners vulnerable to criticism. Doctors must update their knowledge and skill sets periodically.

Medical Audit. An audit must be accepted by medical fraternity as a tool for its own good as it may identify silent errors committed. It must be discussed and noted for future avoidance. An in-house medical audit should be promoted.

Regular follow up. One must ensure that the patient is followed up. An effort must be made to document your instruction to the patient for a follow-up. If the patient doesn't show up and develops a complication at a later stage you will always be saved in Court of law.

Adequate facilities. Having the right facilities and necessary help at hand is another prerequisite for providing adequate care. Any shortfall should lead to delaying the procedure unless doing so would jeopardize the patient's wellbeing.

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Intentional Chronic Lithium poisoning by the wife for preventing physical torture during domestic violence by her husband suffering from bipolar disorder

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Abstract

Lithium, was popular as a drug of choice in past for maniac psychosis, rarely prescribed now, because lithium has very narrow therapeutic range, acts as a double-edged sword- it's under dose will not control the maniac violent behavior, and an overdose will be toxic to kidneys & Brain[1]. We describe interesting case of intentional chronic Lithium poisoning reported in our Emergency, due to deliberate irregular follow-up of an elderly male suffering from manic-depressive psychosis with physician by patient's wife & caretaker, who procured lithium drug, and misused lithium as a sword to save herself, from suffering violent abuse by her aggressive husband by overdosing him slowly chronically, resulting into sedative status of the patient, which could be diagnosed by meticulous history taking & logical investigations by treating doctor, who was able to reach on a critical diagnosis of the emergency, thus saving life of patient, from acute kidney failure as a result of lithium toxicity.

Keywords: Lithium, torture; mental health; mania; intimate partner; domestic violence

Introduction

People with mental disorders are more violent than the general population, there are several aspects of untreated bipolar disorder that can lead to an increased risk of domestic violence. A common form of mood disorder is a bipolar disorder with cyclically alternating manic and depressive phases. Mania—elation or irritable mood, reduced sleep, hyperactivity, uncontrollable thought, and speech, may be associated with reckless or violent behavior. The Individuals with the untreated bipolar disorder are at an increased risk for violent behavior for the following reasons: Substance abuse often fuels domestic violence, Mania can cause impulse control disorders, Reckless sexual behavior can cause injury to the bipolar person's partner, Major depression can cause suicidal thoughts or actions. Domestic violence, or intimate partner violence (IPV) as it is sometimes called, is a worldwide problem. Intimate partner violence (IPV) is defined by the Centers for Disease Control and Prevention as 'physical, sexual, or psychological harm by a current or former partner or spouse (1). According to a National Family and Health Survey in 2005, the total lifetime prevalence of domestic violence was 33.5% and 8.5% for sexual violence among women aged 15–49yrs (2).

Case presentation: A 58 yrs. old male with bipolar disorder on lithium therapy was hospitalized in Emergency in the drowsy lethargic state with recurrent episodes of convulsive syncope. On examination, the patient had fine flapping tremors of both hands, slurred speech, ataxia, lethargy, and confusion. Despite increasing lethargy, the

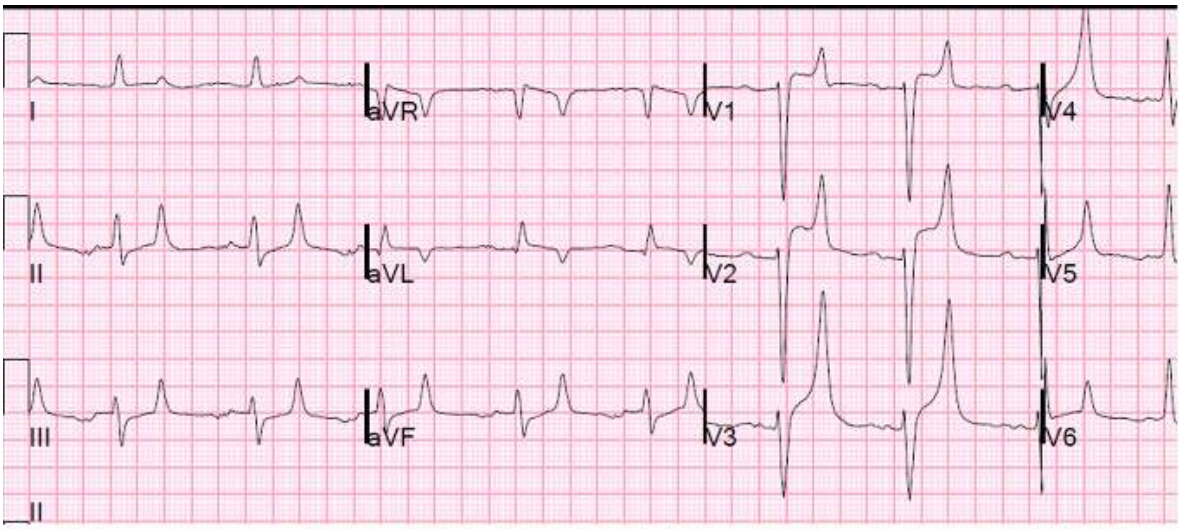

Fig. 1.ECG of a patient on Lithium Therapy

patient had continued to receive his regular dose of lithium by his wife, the patient was admitted with profound dehydration, ECG showed abnormal T wave with widened QRS pattern (Figure 1). Card Test: Trop I = 1.03 was critically high, but CPKMB was normal. Blood Gas analysis showed hyperkalemia & ant hyperkalemic medications were administered, showing improvement in VBG report (Figure 1b). Acute renal dysfunction (Urea=169 mg/dL, Creatinine= 4.40 mg/dL) (figure 2) and hyperkalemia (K= 6.9) were noted on laboratory reports. Serum Lithium = 2.89mmol/L was critically toxic (therapeutic range= 0.6-1.2mmol/L) (figure 3). The patient developed acute kidney injury with sepsis, requiring aggressive treatment of urgent dialysis and discontinuation of lithium, replacing with safer antimanic drugs.

Lithium carbonate is a drug of its own kind to suppress mania and to exert a prophylactic effect in bipolar(manic-depressive) disorder at doses which have no overt CNS effects. Lithium is established as the standard anti-maniac and mood-stabilizing drug. During its excretion, Lithium-ion is handled by the kidney in much the same way as Sodium ions. Nearly 80% of the filtered Lithium is reabsorbed in the proximal convoluted tubule in the kidney. Since the margin of safety is narrow, monitoring of serum lithium concentration is essential for optimizing therapy. Serum lithium level is measured 12 hours after the last dose to reflect the steady-state concentration; 0.5–0.8 mEq/L is considered optimum for maintenance therapy in bipolar disorder, while 0.8–1.1 mEq/L is required for episodes of acute mania. Toxicity symptoms occur frequently when serum levels exceed 1.5 mEq/L(3).

CNS toxicity manifests as plasma concentration rises to produce coarse tremors, giddiness, ataxia, motor incoordination, nystagmus, mental confusion, slurred speech, hyperreflexia.
Overdose symptoms are regularly seen at plasma concentration above 2 mEq/L. In acute intoxication, these symptoms progress to muscle twitching, drowsiness, delirium, coma, and convulsions. Treatment of its overdose is symptomatic. There is no specific antidote. Osmotic diuretics and sodium bicarbonate infusion promote Lithium excretion. Hemodialysis is indicated if serum levels are > 4 mEq/L or features of kidney injury e.g., hyperkalemia occurs (3).

There are several domestic violence laws in India. The earliest law was the Dowry Prohibition Act 1961 which made the act of giving and receiving dowry a crime. In an effort to bolster the 1961 law, two new sections, Section 498A and Section 304B were introduced into the Indian Penal Code in 1983 and 1986. The most recent legislation is the Protection of Women from Domestic Violence Act (PWDVA) 2005. The PWDVA, a civil law, includes physical, emotional, sexual, verbal, and economic abuse as domestic violence. The Act provides for the first time in Indian law a definition of "domestic violence", with this definition being broad and including not only physical violence, but also other forms of violence such as emotional/verbal, sexual, and economic abuse. It is a civil law meant primarily for protection orders and not meant to penalize criminally

Fig. 1b. Hyperkalemia with hyperglycemia

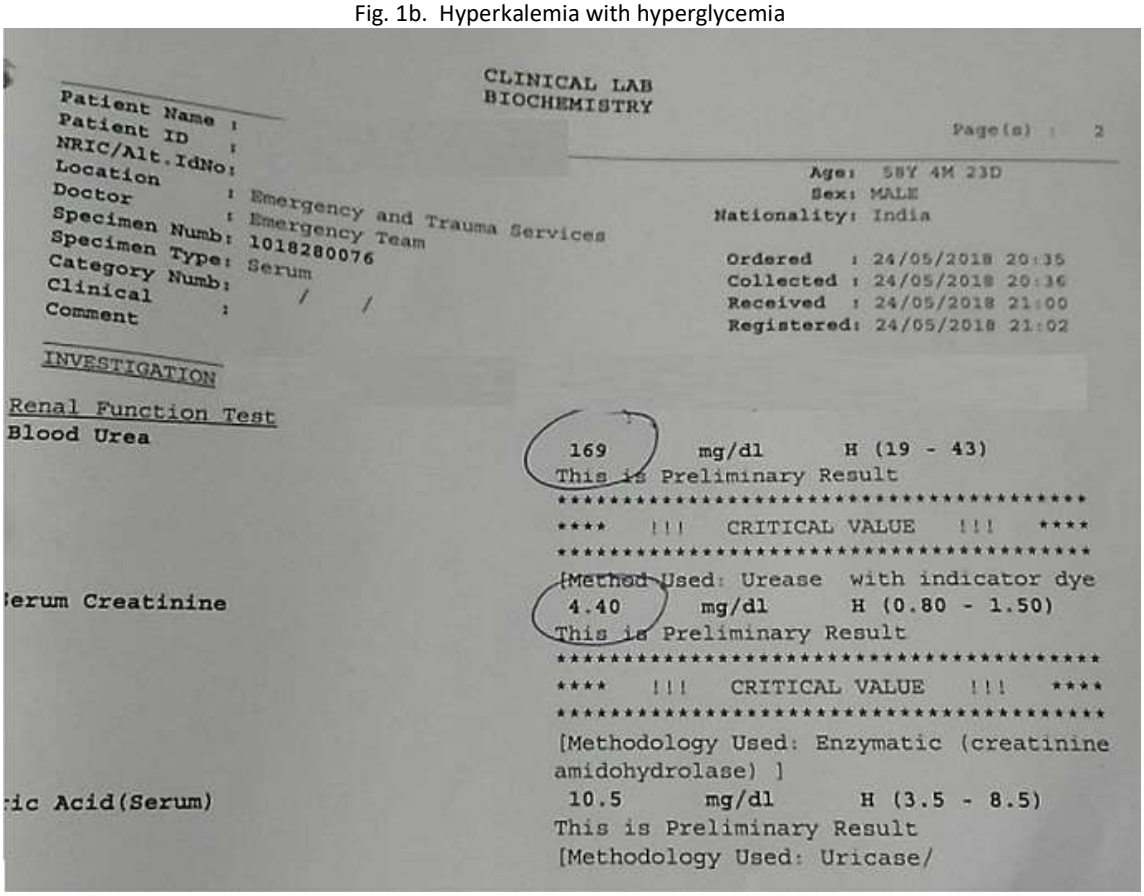

Fig. 2. High serum urea & creatinine level with Lithium therapy

S02 - MEDANTA THE MEDICITY
SECTOR -38, GURGAON, HARYANA, PIN CODE
N O : 122001
GURGAON

Name	: Mr.			Collected	: 25/5/2018 9:19:00AM
Lab No.	: 141059855	Age: 58 Years	Gender: Male	Received	: 25/5/2018 9:37:27AM
				Reported	: 25/5/2018 6:25:34PM
A/c Status	: P	Ref By :	MEDANTA THE MEDICITY	Report Status	: Final

Test Name	Results	Units	Bio. Ref. Interval
LITHIUM, SERUM @ (Colorimetric)	2.89	mmol/L	0.40 - 1.20

Interpretation

STATE	REFERENCE RANGE IN mmol/L
Normal	0.40-1.20
Warning	1.20-1.50
Risk of intoxication	>1.50

Fig.3. Toxic Lithium levels of a patient on Lithium therapy

Discussion

Domestic violence in India includes any form of violence suffered by a person from a biological relative, but typically is the violence suffered by a woman by male members of her family or relative. Domestic violence is defined by Section 3 of the PWDVA Act as "any act, omission or commission or conduct of the respondent shall constitute domestic violence in case it: harms or injures or endangers the health, safety, life, limb or well-being, whether mental or physical, of the aggrieved person or tends to do so and includes causing physical abuse, sexual abuse, verbal and emotional abuse, and economic abuse; or harasses, harms, injures or endangers the aggrieved person with a view to coerce her or any other person related to her to meet any unlawful demand for any dowry or other property or valuable security; or has the effect of threatening the aggrieved person or any person related to her by any conduct mentioned in clause (a) or clause (b); or otherwise injures or causes harm, whether physical or mental, to the aggrieved person (4)." The other relief envisaged under the Act is that of the power of the court to pass protection orders that prevent the abuser from aiding or committing an act of domestic violence or any other specified act, entering a workplace or any other place frequented visited by the abused, attempting to communicate with the abused, isolating any assets used by both the parties and causing violence to the abused, her relatives and others who provide her assistance from the domestic violence.

It is not uncommon for the partner of a bipolar individual to resort to manipulating medical interventions in order to prevent her partner from becoming more violent (2). In our case, wife of patient misused Intentional Chronic Lithium poisoning as a sword of protection, for preventing physical torture in domestic violence by her violent husband suffering from bipolar disorder, as lithium overdose resulted in drowsiness and reduced energy levels in the patient, thus reducing incidence of violent attacks on herself by the patient, because the law -PWDVA, is not useful in preventing the domestic violence by mentally ill patients on their family members. In addition, Section 84 of IPC also prevent any legal restraint on the violent maniac patient - Act of a person of unsound mind.—Nothing is an offence which is done by a person who, at the time of doing it, by reason of unsoundness of mind, is incapable of knowing the nature of the act, or that he is doing what is either wrong or contrary to law (5). Recently Mental Healthcare Act 2017, also emphasizes legal protection to insane - that criminal acts of violence done by mentally ill under the influence of mental illness, cannot be held criminally responsible for their crime (6). MHA Act has been amended in 2017 to provide for mental healthcare and services for persons with mental illness and to protect, promote and fulfill the rights of such persons during delivery of mental healthcare and services and for matters connected therewith or incidental thereto.

Conclusion

Medical causes of violent behavior should be adequately treated by regular follow up with a physician, to prevent the intentional or unintentional drug toxicity to patients by their

family members, as a wrongful method of protecting self by harming other.

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Conflict of interest

Nil

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Letters to Editor

Dear Sir

Congratulations for publication of the new issue of your journal and I know it will be a feast for the mind to be enjoyed by all. Today I want to write about the recent Judgement given by The Hon'ble Supreme Court of India, which decriminalizes Section 377of India Penal Code. As we all know, Section 377 deals with "unnatural offences," and holds "whoever voluntarily has carnal intercourse against the order of nature with any man, woman or animal shall be punished with imprisonment for life, or with imprisonment of either description for a term which may extend to ten years, and shall also be liable to fine. (1)." Section 377 of the Indian Penal Code is a section of the Indian Penal Code introduced in 1861 during the British rule of India. If we see the timeline of this case, this case started in July 2009, as PILs filed by NGO Naz Foundation among others was being heard in High Court of Delhi. The government was against this quashing of Section 377 as they argued that as homosexuality comprises only 0.3 percent of India's population, the rights of more than 99 percent of the people cannot be compromised to support this 0.3 % (2). However, Court gave the decision of decriminalizing Section 377 as it violated Section 14, 15 and 21 of our Constitution. Also, Court upheld criminalization for non-consensual and non-vaginal sex involving minors. This decision was challenged in Supreme Court which in December 2012, Double bench overruled the decision of Delhi High Court after finding it "legally unsustainable." The apex court also left it to Parliament to consider deleting the provision. The Naz Foundation filed a review petition in 2014 which was also quashed by the Supreme Court. In the parliament too, there was a setback when a year later in 2015, the lower house, where the BJP is in majority, voted against the introduction of a private member's Bill to decriminalized homosexuality which was proposed by Congress leader Mr. Shashi Tharoor. In 2016, five petitioners filed PIL which included S Johar, journalist Sunil Mehra, chef Ritu Dalmia, hotelier Aman Nath, and business executive Ayesha Kapur (3). This PIL was for challenging the constitutional validity of Section 377 and was first time filed by citizens directly affected by it. In 2017, a decision by The Supreme Court came which became a backbone of the current judgment. This was regarding the right to Privacy. Supreme Court, held Right to Privacy as a fundamental right and observed that "sexual orientation is an essential attribute of privacy". It said that the "right to privacy and the protection of sexual orientation lie at the core of the fundamental rights guaranteed by Articles 14, 15 and 21 of the Constitution". In July 2018, five-judge bench was constituted for hearing petitions challenging Section 377 IPC. Thus, on 6 September 2018, the bench pronounced its verdict and reversed its own 2013 judgment of restoring Section 377, by stating that using the section of the IPC to victimize homosexuals was unconstitutional, and henceforth, a criminal act. Thus, consensual sexual acts between adults cannot be a crime, deeming the prior law "irrational, arbitrary and incomprehensible. This has become one of the landmark Judgment related to constitutional rights of an individual.
Thank you and regards.

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LGBT and Gay Gene, in Islamic Perspective

The first scientist who introduced the theory of "Gen Gay" was Magnus Hirscheld from Germany in 1899, who asserted that homosexuality is innate. He then proclaimed for legal equality for homosexuals. In 1991, the researcher Dr. Michael Bailey and Dr. Richard Pillard conducted research to prove the theory. They examine couple brother: identical twins, non-identical twins, biological brothers and adopted brothers; one of them is gay. The research concluded that there is a genetic influence in homosexuality. There are 52% couples of identical twins from gay progressing to be gay. Only 22% of couples of ordinary twins show that nature. The biological brother has 9.2% tendency, and 10.5% of adoption brother. However, the gene on the chromosome that carries the descending nature is NOT SUCCESSFULLY FOUND.

In 1993, the research was continued by Dean Hamer, a gay, who studied 40 pairs of homosexual brothers. Hamer claimed that one or more of the genes derived by the mother and located on the Xq28 chromosome greatly affects people who exhibit homosexuality. The results of this research confirm the opinion of homosexuals that homosexual is fitrah / innate, not a deviation so that it is impossible to be straightened out.

A publication of American Scientific written by Debra W Soh, about the similarity of research done in Samoa with the research conducted in the state of Oaxaca in Mexico that links higher level of anxiety to homosexual male - the pressure caused by the separation from the main figures, such as primary caregivers or close family members, compared with heterosexual male. This anxiety is associated with exposure to the female steroid hormones in the prenatal environment is considered "feminization" the male brain region associated with sexual orientation, thus affecting being bound and anxiety. On this observation, the research on molecular genetics has shown that Xq28, the region located at the end of X chromosome, is involved in the expression of anxiety and male androphilia. This work shows that a common genetic factor can underlie both expressions. The twin studies also point to a genetic explanation as a fundamental force for the preferences of a same-sex couple in men and neuroticism, a personality trait which is comparable to anxiety.

So, do other researchers just believe it?

Until six years later, the homosexual carrier gene has not been found to be real. Dean Hamer also conceded that his research did not support that gene is the main factor that produces homosexuality.

"We accept that the environment has a role to shape sexual orientation ... Homosexuality is purely not genetic. Environmental factors play a role. There is not one powerful gene that causes a person to be gay ... we will not be able to predict who will be gay."

Hamer acknowledged that his research failed to provide clues that homosexuality is innate.
"The family tree line fails to produce what we hope to find that is a Mendelian inheritance law. In fact, we have never found in a family that homosexuality is distributed in clear formulas such as Mendel's observation in the bean plants."

In 1999, Prof. George Rice from the University of Western Ontario, Canada, adapted Hamer's research with a larger number of respondents. Rice and the team examined 52 pairs of homosexual brothers to see the presence of four markers on the chromosome region. The results show, the brothers do not show the same marker in the Xq28 gene except by chance. The researchers suggested that any possible genes in Xq28 that have a genetically significant effect on the existence of homosexuality can be eliminated. So the results of their study do not support the existence of the Xq28 gene link that is said to underlie male homosexuality.

Ruth Hubbard, a board member of "The Council for Responsible Genetics" who is also the writer of "Exploding the Gene Myth" book stated:

"The search for a gay gene is not a worthwhile search effort. I do not think there is a single gene that governs a very complex human behavior. There are various genetic components in everything we do, and it is folly to declare the genes not involved. But I do not think the genes are decisive."

The research was also conducted by Prof. Alan Sanders from the University of Chicago, in 1998-1999. The results of research also do not support the theory of genetic relationship in homosexuality. The research of Rice and Sanders is further undermining the theory of "*Gen Gay*". The results of the above research, despite finding genetically homosexual links, but suggest that

genes are not the dominant factor in determining homosexuality. But the results of this false study about the theory of "*Gen Gay*" are then used as their powerful weapons to fight for their rights.

LGBT are now constantly on the move looking for self-existence, their movement is very systematic and structured. In fact, their movement is supported by LINE and Whatsapp message application provider and Facebook that provide stickers or emoticons about LGBT. Post-legalization of similar marriages in the United States in the middle of last year, LGBT movement has become more massive, calibration has been funded by the foreign / international organization and leading companies. One of the LGBT support companies is Starbucks. The largest coffee shop in the world fully supports similar marriages to its campaign ads: 'Drinking Coffee, Supporting same-sex marriage'. Not only that, they are also fully supported by the Development Program of PBB/UNDP. The world's institutions with the support of the Swedish Embassy in Bangkok, Thailand,and USAID contribute more than $ 8 million to support a program called 'Being LGBT in Asia' (BLIA). The program is aimed at China, Indonesia, Thailand,and Philippines. Their movement is fully supported by liberals and human rights activists. Only with the power of freedom and human rights that they can continue to grow and show its existence.

Action among this LGBT cannot be addressed just ordinary. According to a psychologist, they are very dangerous. They liken, they are sex sect that continues to search for new victims. In the numbers get legalization to do the transmission to the environment. Only then their quantity will increase because they cannot have offspring. The large amount expected by them will be seen by policymakers so that their interests are accommodated. Even the university world is now one of the targets of the spread of LGBT deviant behavior. They target intellectuals both students and academics. They spread their ideas with a scientific pack that LGBT is normal behavior.

The impact of widespread LGBT is very real. It can be expected that HIV/AIDS will become more rampant. The disease that has not been the cure so far so many transmitted by the homo. The disease is not only affected by LGBT alone but can also spread about anyone through many paths such as syringes, blood transfusion, marriage, etc. LGBT will decrease the fertility rate (birth). Their deviant behavior encourages the emergence of depopulation or population reduction. To be sure, their action is immense disobedience. Their sin is immense. The LGBT rampant can invite the punishment of Allah SWT as happened in the time of Prophet Luth as. Still, a lesson was given to the Luths?

The development of LGBT is a fruit of democracy with the principle of freedom and its human rights, the democracy provides space for LGBT to grow and develop. With democracy, it is all so allowable. With democracy, the State's decision is determined only by the number of votes not true and wrong from a particular point of view. And the most basic of democracy makes a religion out of the human life scene. So there is no other way to deal with the current condition except to stop it. Individually, LGBT should immediately repent. Society does not allow and tolerate this depraved behavior to flourish. Hoping the country to stop it seems difficult because the state is actually liberating. So there is no other way except to change the system prevailing in this country with the Islamic system. Only with the Islamic system, LGBT will be stopped because the state imposes sanctions even until the death penalty.

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- Commentary: Intended for Reviews, Case Reports, Preliminary Report, and Scientific Correspondences.

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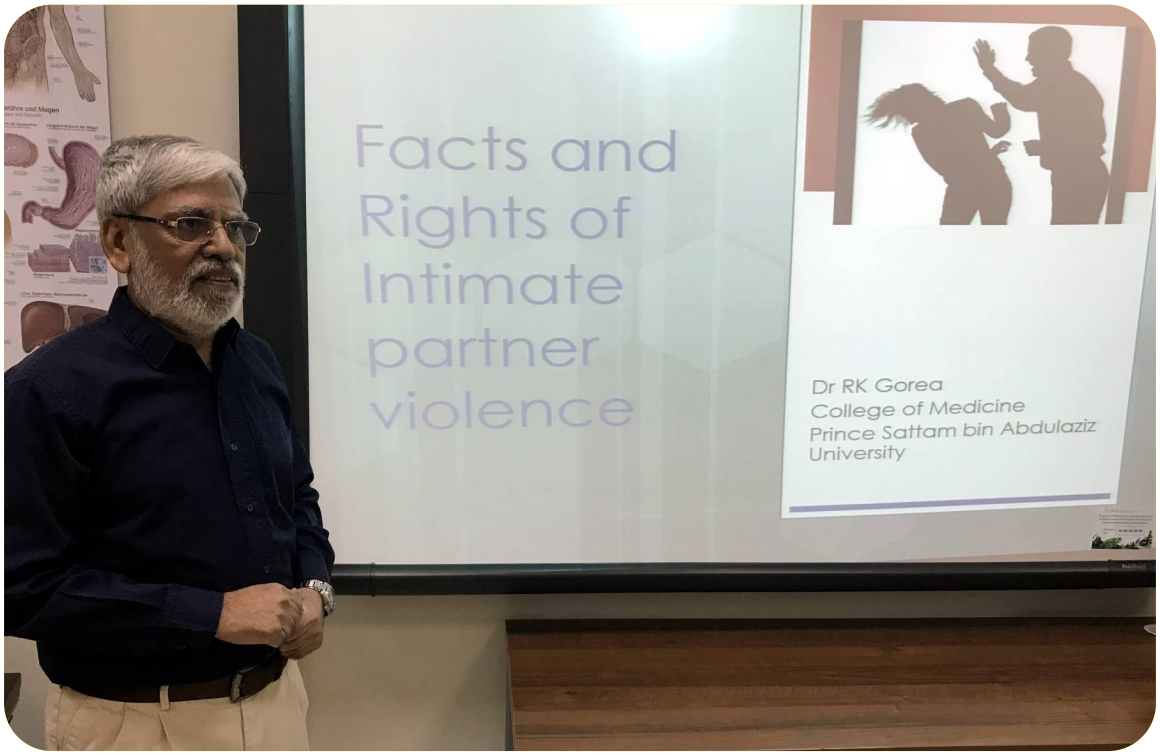

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