

**FATAL HEAD INJURY IN HOMICIDAL DEATHS IN
BHOPAL REGION OF CENTRAL INDIA****DR. PRADEEP KUMAR MISHRA*¹ AND DR. SANDEEP SINGH²***1. MBBS, MD, Assist. Professor, Dept. of Forensic Medicine & Toxicology, R. D Gardi Medical College, Ujjain (M.P), INDIA**2. MBBS, MD, Assist. Professor, Dept. of Forensic Medicine & Toxicology, L. N Medical College, Bhopal, (M.P)***ABSTRACT**

The head is a vital organ and the most vulnerable part of body to receive injuries. Injuries to the head are accidental, mostly vehicular or homicidal. Material and methods - The present study was based on retrospective analysis of 218 homicidal deaths in three years period from January 2004 to December 2006 from autopsies done in the Department of Forensic Medicine and Toxicology, Gandhi Medical College, Bhopal and Medico legal Institute, Home (Police) department, Government of Madhya Pradesh. The present study is carried out to assess the most vulnerable age group, sex incidence, seasonal variation, hospitalization, survival time, fatal period, defense wound and weapons used in order to get better perspective of the situation. Observation - The study was conducted on 218 alleged cases of homicide and the incidence of homicide by head injury was 39.7% (73 out of 218 homicides). There was predominance of male. Conclusion - The present study has shown that victims in younger age groups, predominantly males, are vulnerable to homicidal head injuries. Head injuries were predominantly caused by blunt weapon. In the majority of cases injuries were severe in nature, involving all the structures of the head (scalp, skull, brain and/or meninges). Most of the cases died on the spot, before health facilities could be provided, as brain is a vital organ and injury over this organ is likely to cause death.

KEY WORDS: Homicide, Head injury, Defense Wound.**DR. PRADEEP KUMAR MISHRA****MBBS, MD, Assist. Professor, Dept. of Forensic Medicine & Toxicology, R. D Gardi Medical College, Ujjain (M.P), INDIA****Corresponding author*

INTRODUCTION

Violence is a significant public health problem and homicide is severest form of violence, depriving a human being of his fundamental right to live. Homicide is prevalent widely almost all over the world [1]. The head is a vital organ and the most vulnerable part of body to receive injuries. Injuries to the head are accidental, mostly vehicular or homicidal. Patterns of fatal injury vary with the type of object, nature of force, manner of application, and gravity of involvement of the head, with or without protective measures. A cranio-cerebral injury due to blunt trauma causes more homicidal deaths as compared with blunt trauma injury to other areas of the body. A homicide is usually well-planned and therefore not normally witnessed. It is natural for an accused to try to escape detection and, given time, he can make a homicide look like a death from suicide or an accident. It is obvious that a thorough medical and scientific investigation is necessary in every suspicious death due to cranio-cerebral injury. The present study is titled as "Fatal head injuries in homicidal deaths in Bhopal region of Central India, a retrospective study. The present study is carried out to assess the most vulnerable age group, sex incidence, survival time, fatal head injuries, weapons used in order to get better perspective of the

situation. The data collected is compared with previously published literature. The changing trends of methods of homicide are also discussed.

MATERIALS AND METHODS

This study was based on retrospective analysis of 218 homicidal deaths from January 2004 to December 2006 from the postmortems done in the Department of Forensic Medicine and Toxicology, Gandhi Medical College, Bhopal and Medico-legal Institute, Home (Police) department, Govt. of Madhya Pradesh. Out of 218 homicidal deaths, 73 cases (39.7%) were due to fatal head injury. The data includes not only the Bhopal city but surrounding areas also from where cases were referred to the hospital and subsequently died and also includes cases referred for second post-mortem or expert opinion. The data represents all age groups.

Proforma for study was prepared and various information and findings were collected from the post-mortem reports like PM No., age, sex, cause of death, fatal hospitalization and survival time was noted.

OBSERVATION AND DISCUSSION

Table 1
Total homicide cases and homicide by fatal head injury

Year	Total no. of Homicide Cases	No. of head injury cases	Percentage
2004	62	14	22.58%%
2005	86	32	37.21%%
2006	70	27	38.57%
Total	218	73	39.7%

Total 5707 autopsies were conducted during period January 2003 to December 2006, of which 218 cases were of homicide (3.82%). Out of 218 homicide cases, 73 cases were due to fatal head injury (39.7%). There was a trend of gradual increase in the total number

of autopsies conducted, but no definite pattern observed regarding incidence of homicidal cases Percentage of head injury among homicide showed gradual increase from 2004-2006

Table 2
Male: Female Ratio in homicide by fatal head injury

Sex	No. of cases	Percentage
Male	61	83.56
Female	12	16.44
Total	73	100

There was predominance of male. Out of 73 cases, male were 61 (83.56%) and female were 12 (16.44%) and male: female: male ratio was 5.08:1. Males outnumbered females, indicating that males by nature indulge in more violent activities.

Table 3
Age and sex wise distribution of homicidal head injury cases

Age in years	Male	Female	Total (%)
0-10	1	1	2 (1.3%)
11-20	8	2	10(13.7 %%)
21-30	25	0	25 (34.2%)
31-40	14	3	17 (23.3%)
41-50	7	3	10 (13.7%)
51-60	1	1	2 (1.3%)
>60	5	2	7 (9.6%)
Total	61 (83.6%)	12 (16.4%)	73 (100%)

Most affected age group was third decade (34.2%) and then 4th decade (23.3%), while least affected age group were 1st and 6th decade (1.3% each). The highest recorded incidence amongst the 21-30 years age groups indicates that they are commonly

involved in family disputes and other arguments. Moreover these groups are more exposed to the outside environment by nature of their life style and may be due to vicarious freedom and escape from parental society.

Table 4
Season wise study of homicidal head injury cases

Season	2004	2005	2006	Total (%)
Summer (Mar-June)	6	11	11	28 (38.35%)
Rainy (July to Oct.)	6	9	13	28 (38.35%)
Winter (Nov. to Feb.)	2	12	3	17 (23%)
Total	14	32	27	73 (100%)

Most of the cases were found in summer and rainy season accounting for 38.35%% cases each, while only 17.23% cases were found in winter season. This spurting in summer might be attributed to hot weather, when people come out from their houses and more

gathering and interaction takes place and when spirits run high and tolerance is decreased, causing confrontation resulting in argument and provocation which may lead to violence. In winter season, due to cold weather people remain in their houses, less

gathering and interaction takes place and also tolerance is relatively better than

summer, leading to less argument, provocation and violence.

Table 5
Duration of survival (n=73) in homicidal head injury cases

Survival time	No. of cases	Percentage
Instant death	43	58.9
<12 hours	3	4.1
12- 24 hour	19	26
1-2 days	5	6.9
2-3 days-	0	0
3-7 days	3	4.1
7-30 days	0	0
>30 days	0	0
Total	73	100

In the present study maximum number of victims (58.9%) died on spot or found dead at the scene of crime, before health facilities could be provided. Remaining 41.1% cases were hospitalized, of which 22 cases died within 24 hours and 8 cases died within 1-7 days. The appreciable decrease in survival

period may be attributed to an increase in lethality of weapons and the involvement of more than one assailant, despite the advancement of life support to the injured. This also indicates the intension/ reflects the severity with which homicidal injuries are inflicted.

Table 5
Type of injuries in head region (n=73)

Type of Injury	No. of cases	Percentage
Blunt trauma	60	82.19
sharp/incise	8	10.96
stab injury	0	0
firearm	5	6.85
Total	73	100

Blunt injury was most common injury present on head (82.19%), followed by sharp/incise wound in 10.96% cases. No case of stab injury on head was observed. It is probably thought by the assailants that blunt trauma to the head and penetrating trauma to the chest and abdomen is always fatal [2]. Another reason why blunt weapons are commonly used is that they are cheap, easily available, and when discovered afterwards can be claimed to be household tools. Firearm injuries were present in only 6.85% cases, due to strict legislation for possession of firearm. Bhopal is located in the center of the

country and its border does not touch border of any other country or any naxalite area and also terrorist activities are not common here. So firearm is less common. Gill J.R and Catanese C.I [3] reported that sharp injuries were leading cause of homicide in countries with strict gun control laws, such as United Kingdom, Canada and Sweden. In the United States, gunshot wounds are leading cause, amounting to 60% of total homicides. The same was reported by Fingerhut L.A et al [4] in the United States where the most common weapon was a gun.

Table 6
Showing pattern of head injury (n=73)

Pattern of Injury	No of Cases	Percentage
Fracture of head	71	97.2%
EDH alone	0	0%
SDH alone	3	4.2%
SAH alone	4	5.6%
EDH+SAH	3	1.4%
SDH+SAH	39	54.9%
EDH+SDH+SAH	15	21.1%
Brain Injury	23	32.4%

(EDH = epidural haemorrhage, SDH = subdural haemorrhage, SAH = subarachnoid haemorrhage)

Total head injury cases were 73, of which 71 cases were having fracture. EDH alone was not responsible for any death while SDH alone was responsible for 3 cases and SAH in 4 cases. Most common pattern observed was combination of SDH & SAH along with skull fracture in 39 cases (54.9%). Next common was combination of EDH, SDH & SAH along with skull fracture in 15 cases (21.1%). Brain injury was present in 23 cases (32.4%). All three head structures, i.e. scalp, skull and intracranial structure (brain and or meninges) are involved in most of the cases. A similar trend has also been observed by other study (5, 6, 7, 8) This indicates that the application of force by the assailant/s is highest during the material moment to make certainty of the death of the victims.

Defense Wound

Defence wound was present in only 22 (30.14%) cases out of total 73 cases of homicide. It is the instinctive behaviour of the victim to raise his/her arm to ward off an attack and to protect vital organs such as the brain. The presence of such injuries indicates an assault by some other person or persons. However, the absence of defence wounds does not exclude homicide, since the victim may be incapable of effective defence for reasons such as surprise, being unconscious or under the influence of alcohol.

CONCLUSION

The present study has shown that victims in younger age groups, predominantly males, are vulnerable to homicidal head injuries. Head injuries were predominantly caused by blunt weapon. In the majority of cases injuries were severe in nature, involving all the structures of the head (scalp, skull, brain and/or meninges). Most of the cases died on the spot, before health facilities could be provided, as brain is a vital organ and injury over this organ is likely to cause death. Defense wounds, when present, indicate the homicidal nature of the attack. Further study is required to compare fatal homicidal head injury with fatal nonhomicidal head injury, particularly in blunt force trauma. Retrospective analysis of pattern of head injury in homicidal cases is part of study on homicide and can be continued in future as prospective study on homicidal cases as they come for medico legal autopsy. Such study may contribute to other aspects of homicide

To decrease the homicide in this area, educational and socioeconomic status should be improved with providing proper occupation among youth in this community. Strict law and order situation should be maintained. Psychiatric evaluation of criminals should be considered. The present study is concluded with the hope that the given suggestions and methods will help in reducing the number of homicides.

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