PROFILE OF HANGING CASES ON AUTOPSY AT A TERTIARY CARE HOSPITAL IN CENTRAL INDIA

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This retrospective study is carried out at Sewagram, which is a historical place and well known for spreading the essence of sovereignty for freedom fighters of India because many of the remarkable revolutionary incidences of freedom were originated from this region. It is a rural and poverty stricken area characterized by lack of infrastructure and a high rate of unemployment. Majority of the individuals are dependent on subsistence farming at home. Objective was to find out the Profile and to identify the risk group of hanging cases at Tertiary Care Hospital, Central India.

There has been increase in the incidences of hanging during the study period i.e. July 2005 to June 2009.It was observed that males (77.41%) are predominantly affected than females (22.59%). Male to female ratio was 3.4:1. Maximum victims (32.25%) were between the age group of 20-29 years. Maximum mortalities (90.32%) were from rural area belonging to lower socioeconomic strata (83.87%) , more common in (74.19%) married persons. Financial problem was the main cause of committing suicide (67.74%). Regarding the manner of death, suicide was the commonest, except one case where there was a presumption of homicide.

Key words- Hanging, Ligature knot, Suicide, Socio economic status

Introduction

India is the only country in the world where hanging is classified among the fifteen leading causes of death in 1998.High incidence of suicides in young farmers by poisoning and in married women by burns has become an alarming medical problem in India. The incidence of suicides by hanging have been reported very sparingly from rural parts of India.[1] It is common practice in India, to kill a victim and then suspend the body from a tree or a rafter to avert suspicion. Such postmortem hangings simulate suicidal hanging. Therefore it is necessary to find out if hanging is the cause of death in a suspended body.[2]

As illustrated by the Casper's experiments that a mark similar to one observed in anti mortem hangings can be produced if the body is suspended within two hours or even longer period after death.[3]

Hanging means self suspension, which is a form of mechanical asphyxia caused by suspension of the body by ligature which encircles the neck, the constricting force being the weight of the body. In partial hanging, the whole body weight is not necessary, only a comparatively slight force is enough to produce death. Weight of the head (5 to 6 kg) acts as a constricting force.[4]

Material & Methods

This is a study of deaths due to hanging during the period from 1st July 2005 to 30th June 2009 at Mahatma Gandhi Institute of Medical Sciences, Sewagram, Wardha which is a tertiary care hospital located near Nagpur in Central India. All hanging deaths autopsied at our mortuary were recorded on a standard proforma. Other necessary data was collected from the

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police, inmates and relatives of the deceased were analyzed and compared statistically. As and when needed, visit to the scene of death was conducted with the help of investigating authorities' depicted definite fruitful outcomes.

Observations ;

The present study was conducted at Kasturba Hospital, Mahatma Gandhi Institute of Medical Sciences, Sewagram, Wardha during the period from July 2005 to June 2009. Total 31 cases of hanging were autopsied at our mortuary.

Discussion

In the present study of total 31 cases of death due to hanging, 24 (77.41%) cases were males and 7 (22.59%) cases were females . The male to female ratio being 3.4:1 similar to the findings of Joshi Rajeev et al[5] from Amritsar with (64%) males and (36%) females. Maximum no (32.25%)of cases were observed in the age group of 20-29 years consistent with Rajeev Joshi et al, who reported (44.18%) cases in the age group of 21-30 years. Davidson and Marshall [6] reported, maximum incidence of hanging in the age group of 20-39 years. The reason for this can be due to increasing aggression, stress and easy loss of temper among this age group. Other reason observed was, target oriented attitude where in a small failure makes the entire thing appear as a traumatic experience for them. In the present study 90.32% cases were from rural area and 9.68% were from urban area as the study area being rural area . Sachidananda Mohanty et al[7] also reported that hanging and poisoning (63%) constituted two major methods of suicide in rural background.

Committing suicide by hanging was observed maximum in persons with financial problems 67.74% of cases followed by miscellaneous problems in 16.12% cases. These findings are consistent with studies by Sachidananda Mohanty et al[7] who reported 37% of cases with financial problems and marital disharmony observed in 35% cases was the principle reason for the suicide. The majority of the victims were from the lower socioeconomic strata (83.87%) similar observations are reported by Sachidananda Mohanty et al[7].It may due to the stress induced by the surroundings , especially related to the economics which causes lot of anxiety and insecurity. Out of 31 cases, 74.19% victims were married and 22.58% victims were unmarried and one was a widow who was suffering from psychiatric illness. Sachidananda Mohanty et al study also had majority of the victims who were married. The commitments of marriage and the family are the major stress inducing factors which may not tolerated by all. All male (100%) and female (85.71%) hanging cases reported were suicidal except in one case (14.29%) where there is presumption of homicide.

Complete hanging was reported / observed in 70.96% cases and 29.04% cases were of partial hanging. Position of the ligature was fixed in 70.96% cases. As for as the type of ligature loop, in 67.74% cases single loop was seen. Type of ligature material used was soft, thin material in 80.64% cases. Davidson and Marshall [6] reported the rope as the commonest ligature material used. The reason for selecting such type of material can be explained on the basis of easy availability and it ensures the completion of the act successfully. Fracture of hyoid bone was present in 64.51% cases , while Sheikh et al reported the fracture hyoid bone only in 7.14% cases ,which differs from the present study .It may be due to various factors like age of victim, shape of hyoid, rigidity of hyoid, magnitude of force applied etc as observed by Pollen and Chaisson[8]. While study conducted by Rajeev Joshi et al reported not a single case showing fracture of hyoid bone. Cause of death in

maximum (45.16%) cases was due to the combination of both asphyxia as well as venous congestion.

Conclusion

As we observe from the present study that hanging has become a popular and commonest method of committing suicide. The broadcasting media has reached the kitchen of every home and the incidences like hanging of Saddam Hussain was seen by many. One of the "Rarest of the rare" punishments has been reported by TOI that couple accused in Bombay blast has been awarded death punishment by court .The high lightening of farmers suicides in Maharashtra also being seen by all in all electronic media. Though Prime Minister's package for the farmer's suicides have been declared and implemented in certain areas of central India but still people are committing suicide by hanging as the most effective, easy and cheapest way of ending their lives.

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Table 1: Showing Age and Sex-wise distribution of cases.

Age in years	Male	Female	Total
0-9 yrs	0(0)	0	0(0)
10-19 yrs	3(12.5%)	3(42.85%)	6(19.35%)
20-29 yrs	7(29.16%)	3(42.85%)	10(32.25%)
30-39 yrs	4(16.67%)	0(0.00%)	4(12.90 %)
40-49 yrs	6(25.00%)	0(0.00%)	6(19.35%)
50 & above	4(16.67%)	1(14.28%)	5(16.12%)
Total	24(77.41%)	7(22.59%)	31 (100%)

Table 2: Showing the area-wise incidence of hanging cases.

Area	Male	Female	Total
Rural	23(95.83%)	5(71.42%)	28(90.32%)
Urban	1(4.17%)	2(28.58%)	3(9.68%)
Total	24(100%)	7(100%)	31(100%)

Table 3: Showing the reason for committing hanging.

Reasons	Male	Female	Total
Financial (Loan waivers)	18(75%)	3(42.85%)	21(67.74%)
Psychiatric illness	0(0)	1(14.29%)	1(3.22%)
Domestic (marital disharmony etc.)	2 (8.33%)	2(28.57%)	4(12.90%)
Miscellaneous (Failure in study, love etc.)	4(16.67)	1(14.29%)	5(16.12%)
Total	24	7	31

Table 4: Showing the socioeconomic status of victims.

Socioeconomic Status	Male	Female	Total
Low	21(87.5%)	5(71.44%)	26(83.87%)
Middle	2(8.33%)	1(14.28%)	3(9.67%)
High	1(4.16%)	1(14.28%)	2(6.45%)
Total	24	7	31

Table 5: Showing the marital status of hanging victims.

Marital Status	Male	Female	Total
Married	19(79.17%)	4(57.14%)	23(74.19%)
Unmarried	5(20.83%)	2(28.57%)	7(22.58%)
Widower/Widow	0(0)	1(14.28%)	1(3.23%)
Total	24	7	31

Table 6: Showing the Manner of death in hanging victims.

Manner	Male	Female	Total
Accidental	0(0)	0(0)	0(0)
Suicidal	24(100%)	6(85.71%)	30(96.77%)
Homicidal	0	1(14.29%)	1(3.23%)
Total	24	7	31

Table 7: Showing the type of hanging

Type of hanging	Male	Female	Total
Complete	18(75.00%)	4(57.14%)	22(70.96%)
Partial	6(25%)	3(42.85%)	9(29.04%)
Total	24	7	31

Table 8: Showing the type ligature knot around the neck.

Position of ligature	Male	Female	Total
Fixed knot	19(79.17%)	3(42.85%)	22(70.96%)
Running noose	4(16.67%)	3(42.85%)	7(22.58%)
Slip knot	1(4.16%)	1(14.28%)	2(6.45%)
Total	24	7	31

Table 9: Showing the types of ligature loop around the neck

Type of ligature	Male	Female	Total
Single loop	17(70.83%)	4(57.14%)	21(67.74%)
Double loop	2(8.33%)	1(14.28%)	3(9.67%)
Multiple loop	5(20.83%)	2(28.57%)	7(22.58%)
Total	24	7	31

Table 10: Showing the types of the ligature material used.

Type of ligature material used	Male	Female	Total
Soft, thin (Wire, Rope, Saree dupatta etc.)	20(83.33%)	5(71.42%)	25(80.64%)
Broad, thick (Towel, bed sheet, dhoti, cotton bandage etc.)	4(16.67%)	2(28.57%)	6(19.36%)
Total	24	7	31

Table 11: Showing the incidence of fracture of hyoid bone in hanging victims

Fracture of hyoid bone	Male	Female	Total
Present	15(62.5%)	5(71.42%)	20(64.51%)
Absent	9(37.5%)	2(28.57%)	11(35.48%)
Total	24	7	31

Table 12: Showing the cause of death in hanging victims

Cause of death	Male	Female	Total
Asphyxia	4(16.67%)	1(14.28%)	5(16.12%)
Venous congestion	8(33.33%)	1(14.28%)	9(29.03%)
Combination of both	10(41.67%)	4(57.14%)	14(45.16%)
Fracture/dislocation of cervical vertebrae	2(8.33%)	1(14.28%)	3(42.85%)
Total	24	7	31