

FREQUENCY OF NEGATIVE AUTOPSY AND THEIR DEMOGRAPHIC EVALUATION AT KHYBER MEDICAL COLLEGE, PESHAWAR

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ABSTRACT

Objective: This study was planned to see the frequency of negative autopsy against the total autopsies performed during the period.

Material and Methods: This descriptive study was conducted at the Department of Forensic Medicine and Toxicology, Khyber Medical College, Peshawar and was based upon autopsy data of 10 years with effect from January 1997 to December 2006. In this study fresh or minimally decomposed bodies with no external or internal injury were included. In cases where gross examinations, microscopic examination, toxicological analysis failed to detect the cause of death were labeled as negative autopsies.

Results: In a total of 7082 autopsies, 103 (1.45%) autopsies were found to be negative. Out of these negative autopsies, 89 (86.40%) were males and 14 (13.60%) were females. The age of deceased ranged from 6-75 years with mean age of 43.81 ± 16.95 years. Majority i.e. 17 (16.5%) were in the age range of 31-35 years, followed by 15 (14.5%) in the age range of 51-55 years. Ten (9.7%) were in the age range of 46-50 years and 21-25 years each. Among these negative autopsies, 66 (64.1%) were from urban and 37 (35.9%) were from rural areas of district Peshawar.

Conclusion: Majority of negative autopsies were of young male persons from urban areas. Negative autopsies need further studies to look for possible reasons like inadequate training of doctors performing the autopsy or limited resources like availability of histopathological or analytical services etc.

Key words: Medicolegal Autopsy; Negative Autopsy Rate.

INTRODUCTION

Autopsy (autos = self; opis = view) literally means to see for oneself. A medico-legal autopsy (necropsy) or postmortem examination (necros = dead, opis = view; post = after, mortem = dead) means an autopsy that is performed by an authorized medical officer to meet with specific requirements of law.¹ A medico-legal autopsy is defined as to establish the cause of death and to decide whether it is due to natural or un-natural causes. The aims and objectives of the autopsy are:

- To ascertain identity of the body
- To estimate the time of death
- To document the number and nature of injuries
- To interpret the significance and effect of injuries
- To identify any natural disease or abnormality

To interpret the significance and effect of disease

To identify the presence of poison

To interpret the effect of any medical and surgical treatment

Viable live or dead infant born.²

Autopsies are scientific procedures whereby not only the cause of death is ascertained, but the clinico-pathological correlation is also established. The immediate cause of death and its correlation with the disease process present are ascertained by autopsies.³ Through autopsy, the course of a disease and the pathological lesions in various stages of evolution can be studied. It is a procedure whereby a variety of observations can be made of internal organs and systems and the material submitted for myriad of modern laboratory investigations and tests.^{4,5} Autopsy

SEX-WISE DISTRIBUTION OF NEGATIVE AUTOPSIES (n=103)

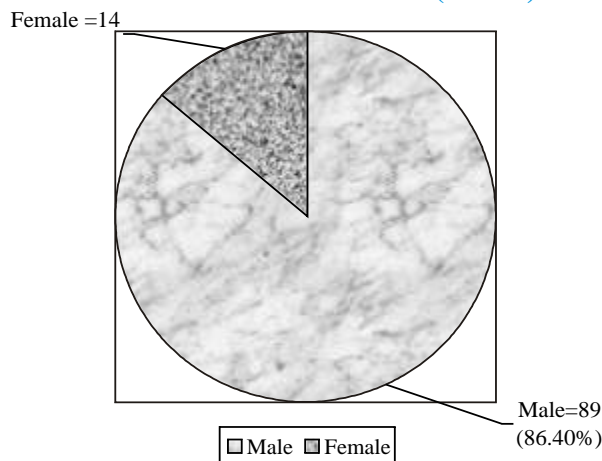


Figure 1

findings can be used as strong bases for clinical audit.⁶ In Pakistan, no baseline information are available on many aspects of medical sciences, and the diagnostic medical technologies are in its infancy, therefore, autopsy observations and findings can play a very vital role in the understanding, diagnosis and management of the disease.³ When gross and microscopic examination, toxicological analysis and laboratory investigations fail to reveal a cause of death, the autopsy is considered to be negative. World-wide rate of negative autopsies is 2-10%.⁷ There are certain conditions where no findings are found at autopsy. Deaths from vagal inhibition, status epilepticus, hypersensitivity reaction etc may show any anatomical findings. Even if death results from laryngeal spasm in drowning no anatomical findings may be present.⁷ An over worked and under nourished ventricle may suddenly go into ventricular fibrillation or asystole even if the arteries are not completely blocked. A sudden demand for an increased cardiac output by running for a bus or becoming involved in a fight may cause the patient to die. At autopsy no significant finding will be observed apart from narrowing of the coronary arteries⁸. Occasionally the cause of death is literally “unascertainable”.⁹ It is sometimes quite impossible to find out the cause or nature of death in grossly decomposed bodies. It is also not always possible to detect certain poisons. Some common poisons like barbiturate and alcohol are very quickly metabolized in the body and the detection of these substances become almost impossible after some time.¹⁰ The purpose of the present study was to find out the rate of negative autopsies and their demographic pattern in the last ten years.

MATERIAL AND METHODS

This descriptive study conducted

FREQUENCY OF NEGATIVE AUTOPSY IN THE LAST TEN YEARS

| | Frequency (n=7082) | Percentage |
|--------------------|--------------------|------------|
| Positive Autopsies | 6979 | 98.55% |
| Negative Autopsies | 103 | 1.45% |

Table 1

retrospectively at the Department of Forensic Medicine and Toxicology, Khyber Medical College (KMC), Peshawar and was based upon autopsy data of 10 years with effect from January 1997 to December 2006. The study included the fresh cases or minimally decomposed cases having no external or internal injury sufficient to cause death and also histopathology and toxicological analysis failed to detect the cause of death in these cases. In all cases gross examinations was mainstay of observation for any obvious cause of death. Microscopic examination and toxicological analysis was done on specimen obtained during autopsy for determination of manner and mode of death. All the qualitative variables like, sex, demographic features, cause of death, negative autopsy rate were recorded and the data was then analyzed for descriptive statistics by using computer programme SPSS version 12. The frequencies/percentages of these variables were calculated. For quantitative variables mean and \pm standard deviation were calculated.

RESULTS

During the study period with effect from January 1997 to December 2006, a total of 7082 autopsies were conducted. Out of which, 103 (1.45%) autopsies were found to be negative

AGE-WISE DISTRIBUTION OF NEGATIVE AUTOPSIES (n=103)

| Age Ranges | No. of Cases | Percentage |
|--------------|--------------|-------------|
| 6-10 years | 2 | 1.9% |
| 11-15 years | 3 | 2.9% |
| 16-20 years | 1 | 1.0% |
| 21-25 years | 10 | 9.7% |
| 26-30 years | 9 | 8.7% |
| 31-35 years | 17 | 16.5% |
| 36-40 years | 5 | 4.9% |
| 41-45 years | 5 | 4.9% |
| 46-50 years | 10 | 9.7% |
| 51-55 years | 15 | 14.6% |
| 56-60 years | 4 | 3.9% |
| 61-65 years | 9 | 8.7% |
| 66-70 years | 8 | 7.8% |
| 71-75 years | 5 | 4.9% |
| TOTAL | 103 | 100% |

Table 2

AREA-WISE DISTRIBUTION OF NEGATIVE AUTOPSIES (n=103)

| Area | No. of Cases | Percentage |
|-------|--------------|------------|
| Urban | 66 | 64.1% |
| Rural | 37 | 35.9% |

Table 3

meaning by “no cause of death ascertained” (Table No. 1). Out of these negative autopsies, males were 89 (86.40%) and females were 14 (13.60%), with a male to female ratio of 6.35: 1 (Figure No. 1). Among the negative autopsies minimum age of the dead was 6 years, while maximum age was 75 years with mean age of 43.81 (\pm Standard deviation of 16.95). The age-wise distribution is given in Table No. 2. All the dead bodies were brought to autopsy suite of Khyber Medical College from various urban and rural areas of district Peshawar. Among these negative autopsies, 66 (64.1%) were from urban and 37 (35.9%) were from rural areas of district Peshawar with a ratio of 1.78: 1 (Table No. 3). The year-wise distribution of negative autopsies is reproduced in Table No. 4.

DISCUSSION

Medico-legal autopsy is a specialized version of standard autopsy, and should be performed by one who has necessary training and experience in forensic pathology and in a mortuary with adequate facilities. A poorly performed autopsy may be considerably worse than no autopsy at all. It is certainly worse than an autopsy delayed for a short while to await the arrival of a specialist². The importance of autopsy in improving the value of death certification is undoubted. But it still has to be conceded that the autopsy is by no means infallible in revealing the definite cause of death. These may be called as cause of obscure autopsy. In many of these cases, cause of death can be made out after detailed laboratory examination of different materials, samples from body. However, it is possible that histology, toxicology, microbiology, and virological screening remained unrewarding. The rate of negative autopsy also varies according to competency, personality, and seniority of the doctor conducting autopsy. The examiner, seasoned doctor is less inhibited toward, admitting something wrong. At times, the death may be due to interaction of multiple factors, when it may become difficult to correlate the correct liability to each¹¹. The negative autopsy rate (1.45%) in this study shows that this is very low rate as compared to various studies reported by some international and national studies. In one local study the cause of death could not be determined in 3 cases out of total 66 cases, represents 4.55%¹². While in another

local study by Memon U et al it was reported that in 42.85% cases no cause of death could be detected.¹³ The study by Rehman M et al has showed 6.9% negative autopsy rate.¹⁰ In another study by Toufique K et al from Bangladesh, it has been reported that in the last ten year period total negative autopsies estimated to be 141. This represented 6% of all cases.¹⁴ The reasons of a negative autopsy may lie with certain types of deaths where no gross pathological changes are visible like neurogenic deaths. In addition the role of inadequate training of doctor performing the autopsy or limited resources like availability of histopathological or analytical services, as a reason of negative can not be ruled out. Almost all age groups were represented in which negative autopsy was found, with the majority being in the young adults aged persons (30-35 years, 16.5%). Other studies on negative autopsies, have not reported age incidence.^{15,16} The incidence of male predisposing is 86.4% in our study. That may be likely to the fact that females in this part of the country due to religious, cultural and traditional customs, are to be spared due to their household abodes, and because they hold honored place even in disputes and enmities. They are least victims of deaths than males in our society.¹⁷

Area-wise majority of negative autopsies was reported from urban areas as compared to rural areas. This may be due to easy availability of all kind of sophisticated and modern weapons in the rural as well as in urban areas. Peshawar having a border with tribal areas and Afghanistan is famous for every type of firearm. The locally made arms and ammunition are easily available in the market at a nominal price without any control, prohibition or restriction from the government law enforcing agencies.¹⁶ Other studies from Pakistan and abroad have not reported this issue. Substantial discrepancies exist between clinical

YEAR-WISE DISTRIBUTION OF CASES (n=103)

| Year | No. of Cases | Percentage |
|--------------|--------------|-------------|
| 1997 | 14 | 13.6% |
| 1998 | 10 | 9.7% |
| 1999 | 14 | 13.6% |
| 2000 | 18 | 17.5% |
| 2001 | 8 | 7.8% |
| 2002 | 10 | 9.7% |
| 2003 | 6 | 5.8% |
| 2004 | 8 | 7.8% |
| 2005 | 8 | 7.8% |
| 2006 | 7 | 6.8% |
| TOTAL | 103 | 100% |

Table 4

diagnosis and findings at autopsy. Autopsy may be used as a tool for quality management to analyze diagnostic discrepancies.¹⁸ Autopsies also allow the description of new diseases, provide countless elements for research, and most of all, greatly improve the quality of medical training.¹⁹

CONCLUSION

Majority of negative autopsies were of young male persons from urban areas. Negative autopsies need further studies to look for possible reasons like inadequate training of doctors performing the autopsy or limited resources like availability of histopathological or analytical services etc.

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