

A RETROSPECTIVE STUDY OF PAEDIATRIC MEDICOLEGAL AUTOPSIES AT THE UNIVERSITY OF BENIN TEACHING HOSPITAL, BENIN CITY, NIGERIA.

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ABSTRACT

Childhood mortality is still of high magnitude in most developing countries and the death of a child is a tragedy for both the child's family and the community more so, when they are mainly due to preventable causes. Medicolegal death is the term used to describe any violent, unclear or suspicious death that must be subjected to legal investigation. The aim of this study is to determine the characteristics and pattern of medicolegal deaths as it concerns paediatric cases. This is a review of all medicolegal autopsies (MLA) involving children between ages 0 to 14 years seen in the department of Histopathology, University of Benin Teaching Hospital between January 1990 and December 2009. A total of 551 childhoods MLA were recorded during the period under review, accounting for 12.3% of all medicolegal autopsies and 96% of all paediatric autopsies. Of this total, 427 (77.5%) cases were due to natural deaths; accidents, 20.7% (n= 114) and homicides, 1.5% (n= 8) while in 0.4% (n= 2) of cases, the cause was undetermined. There were 304 males and 247 females giving a male to female ratio of 1.2:1. Deaths due to respiratory infections, gastroenteritis and malaria accounted for 210 cases (38.1%) and were responsible for most of the deaths. Deaths due to accidental causes were also high. Infectious diseases are still a major cause of death in our environment and efforts should be made by concerned authorities to improve the level of awareness and health education among its populace. Appropriate measures to lower childhood fatalities due to road traffic accidents needs to be made a top priority.

INTRODUCTION

The death of a child is a tragedy for both the child's family and the community. It is tragic that most children die from injuries and other causes that are mostly preventable.¹ The highest rate of mortality in children (especially under 5 years) is said to occur in sub-Sahara Africa, where it has been reported in 2009 that 1 in every 8

children (129 per 1000 live births) die before their 5th birthday.² This level is nearly double the average in other developing countries (66 per 1000) and around 20 times the average for developed countries (6 per 1000).² Globally, there is a one-third decline in child mortality from 89 deaths per 1000 live births in 1990 to 60 deaths per 1000 live births in 2009.³ Millennium Development Goals has childhood mortality as a leading indicator of the level of child health and overall development in a country. Childhood mortality has remained high in developing countries, with only marginal reductions

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achieved over the past two decades despite efforts to reduce morbidity and mortality from the common causes of death in children.¹

Despite modern medical advances, nothing can validate or correct the death certificate like autopsy.⁴ Without an autopsy the cause of death can be wrong in as many as 30% of cases, although autopsies do not always provide the cause of death.⁴

Nigeria being the most populous country in the region has a very high childhood mortality rate of 157 deaths per 1,000 live births.⁵ Very few epidemiological studies of childhood coroner's autopsies have been done in our environment.

The aim of this study is to determine the characteristics and pattern of medicolegal deaths in childhood and to contribute to the establishment of a database for the formulation of national and international policies that will lower the mortality rate in the paediatric age group. Medicolegal death is the term used to describe any violent, unclear or suspicious death that must be subjected to legal investigation. Such deaths include unexpected, sudden or violent deaths, death of prisoners or persons in confinement, cases of homicides, suicides, death of persons with diseases that could threaten the health of the public, death of persons undergoing medical treatment or a surgical procedure, infants and children, prominent or famous persons involved in accidents or unclaimed after death.⁶

MATERIALS AND METHOD

A retrospective analysis was done on all medicolegal autopsy cases seen in Department of Histopathology of the University of Benin Teaching Hospital,

from January 1990 to December 2009. Childhood deaths, involving ages 0 to 14 years as defined by World Health Organization (WHO) were studied. The age, gender, cause and manner of death were determined by review of the autopsy registers, containing data entered by resident doctors over the years. The results obtained were analyzed using the statistical package for social sciences (SPSS) version 15.0, comparisons of discrete data were done using the chi square test. The University of Benin Teaching Hospital is the only tertiary hospital in Benin City, which has an estimated population of 1,086,882 (2006 census).⁷

RESULTS

During the period under study (January, 1990 to December, 2009), a total of 35,914 bodies were received into the department of Histopathology, University of Benin Teaching Hospital. Medicolegal autopsies (MLA) were done on 4481 of them representing 12.5 % of all the bodies received.

Out of 4481 medicolegal autopsies, 551 (12.3%) cases were childhood MLA. Table 1 shows the indication for childhood MLA. Natural deaths are deaths due to diseases and the aging process in which there is no injury or poisoning involved. This category of deaths accounted for 77.5% (n= 427) of cases; accidents, 20.7% (n= 114) of cases; homicides, 1.5% (n= 8) and undetermined 0.4% (n=2). No case of suicide was recorded.

Table 2 shows the causes of natural deaths in childhood. Respiratory diseases were the most common cause of death and accounted for 19.2% (n=82) of natural deaths. The commonly encountered respiratory diseases were pneumonias,

tuberculosis and obstructive pulmonary diseases (which includes emphysema, chronic bronchitis, asthma and bronchiectasis). Other common causes of natural death were gastrointestinal diseases, which accounted for 15.9% (n=68) of cases; malaria, 14.1% (n=60) of cases and central nervous system diseases which accounted for 11.5% (n=49) of cases. Other less common causes of natural deaths were kidney and endocrine diseases which accounted for (1.6%) n=7 and (0.2%) n=1 respectively.

Table 3 shows the various causes of accidental deaths in childhood. There were 114 accidental deaths in this study. These occurred in 66 males and 48 females with a male to female ratio of 1.4:1. All age groups but neonates were involved with the highest rate occurring in 10-14 years age group, (40%, n=41). Road traffic accidents accounted for most of the accidental deaths (74.6%, n=85). Most of the accident victims were pedestrians. The next major cause of accidental deaths was burns (17.5%, n=20).

Homicidal causes of death, was reported in 8 childhood deaths and affected males and females equally. Five of these deaths (62.5%) occurred in children of 5-9 year age group. Majority, 62.5% (n=5) of these deaths were due to gunshots (armed robbery attacks). No case of homicide was reported in 2-11 months and 1-4 year age groups. The case of homicide reported in a neonate was by suffocation.

DISCUSSION

A total of 551 childhood autopsies were done during the study period, accounting for 12.3% of all MLA. This is similar to rate of 12.2% from previous study in the Benin metropolis and close to 11.6% in Ilorin but lower than rates of 24.8% in Lagos.^{8,9,10} The lower rate observed may be due to parents

not showing up after the death of very young children which is generally considered to be a wasted life in our environment. There was a male preponderance with a male to female ratio of 1.2:1, similar to previous reports by Akhiwu, Abdulkareem and Beyaztas in their study populations.^{8,10,11} The reason for this is because young males are more active and are more likely to be involved in outdoor and playful activities which predispose them to spread of communicable diseases and injurious agents, however the difference in study populations may have played a role.

The commonest indication for childhood medicolegal autopsies (MLA) was natural deaths which occurred in 427 children. Common causes of natural death included respiratory diseases, gastrointestinal diseases, malaria and central nervous system diseases. These diseases are mainly due to infections and wide spread communicable diseases in the tropics. These findings are similar to findings from studies in other parts of Nigeria as common indications for paediatric autopsies.^{10,12,13} This high rate of infective diseases points to the great need to put more emphasis on preventive medicine.

Accidental deaths accounted for 114 cases and are the second leading cause of MLA. With increasing age and expected independence and engagement in various outdoor activities, the rate of accident increases, the highest rate occurring in 10-14 year age group (36%). The commonest cause of accidental deaths was road traffic accidents (74.6%). The non availability of public school buses and poor state of roads increases the risk of a child been involved in a road traffic accident. The engagement of children in various commercial activities (especially hawking) due to low

economic status of their parents further increases the risk. This serves as a wake-up call to concerned authorities to endeavor to discourage or minimize child abuse (street hawking), provide school buses, ensure proper licensing of drivers and adequately maintain our roads. The magnitude of road traffic accidents in this study is similar to previous findings in Lagos, Port Harcourt, United Arab Emirate, Scotland and Staffordshire.^{10,14,15,16,17}

Accidental deaths due to burns were another major cause of childhood death (17.5%). Fifty percent of these deaths occurred in children aged 1-4 years. The rate of 17.5% is far higher than 4.8% and 4.2% reported in Port Harcourt and Philadelphia respectively.^{14,18} While the cause of burns/source of fire in Philadelphia was due to various causes, the majority of burns cases in this study were due to petroleum product related fire out-breaks in homes. This is due to the poor electricity supply, as such most parents store petrol at home as a ready source of energy for numerous generators that flood most Nigerian homes. In most cases, the parents were also burnt. Another reason for the high case fatality may be related to the non availability of specialized burns unit in our environment and as such moderate to severe burns victims hardly survive. Few cases of drowning (3.5%) also occurred in wells around homes. That these events (burns and drowning), all occurred around homes, emphasis the point observed in Adana Turkey, that childhood injuries occur more around the home and immediate surroundings.¹⁹

Homicide rate of 1.5% is low compared to the 7.4% previously reported in this centre, 13.0% in Istanbul⁹ and 18.6% in Philadelphia.^{8,11,18} This low rate may be due

to the fact that the present study was hospital based, while the previous study included records of the police clinic, which is a main centre for reporting such cases. Five cases of homicide (62.5%) occurred in the 5-9 year age group and the cause was due to gunshot injuries, in which they were shot during armed robbery attacks. Only a case of sharp object injury was reported, while this is the major method in Istanbul.¹¹ Obvious from this, is that homicide is not a common cause of childhood deaths.

CONCLUSION

The pattern of childhood medicolegal autopsies in the University of Benin Teaching Hospital has been documented. This preliminary data apart from serving as a baseline data for future research has shown that most childhood deaths are due to preventable causes, both natural and unnatural. Infectious diseases are still a major cause of death and efforts should be made by concerned authorities (public health physicians, ministry of health and environmental agencies) towards improving health awareness and health education. Accidental deaths due to road traffic accidents were also prominent, emphasizing the need for local and state governments to provide school buses and strongly discourage hawking by children.

REFERENCES

1. Fajow IB, Egri-Okwaji MTC. Childhood mortality in children emergency centre of the Lagos University Teaching Hospital. *Nig Jpaediatrics*. 2011; 38 (3): 131-135
2. UNICEF, WHO, World bank and UN population division. Levels and trends in child mortality report 2010. <http://www.childinfo.org/files/child-mortality-report-2010>.
3. UNICEF. Levels and trends in child mortality: estimates developed by developing UN interagency group for child mortality estimation. United Nations Children Fund. 3UNPlaza, New York; 2010. 10017 USA.

4. Burton JL. The history of the autopsy. In Burton JL and Ruddy GN(eds): *The Hospital Autopsy*. 3rd Ed. Hodder Arnold London 2010, pp 1 - 10.
5. National population commission (NPC) (Nigeria) and ICF macro. *Nigeria demographic and health survey 1990*. National population commission and ICF macro, Abuja; 1990.
6. Browne C and Dorries CP. Autopsies and the law. In Burton JL and Ruddy GN(eds): *The Hospital Autopsy*. 3rd Ed. Hodder Arnold London 2010, pp 26 - 38.
7. Federal Republic of Nigeria. *Priority Table V on population distribution by age and sex in States and Local Government Areas*. National population commission, April 2010. Abuja, Nigeria. pp. 252-63.
8. Akhiwu WO, Igbe AP, Eze GI and Obaseki DE. *Medicolegal childhood deaths in Benin City, Nigeria*. *W Afr J Med*. 2011; 30 (6): 413-416.
9. Fagbule D, Joiner KT. *Pattern of childhood mortality at University of Ilorin Teaching Hospital*. *Nig. J Paed*. 1987; 14: 1-5.
10. Abdulkareem FB, Elesha SO, Banjo AAF. *Prospective autopsy study of childhood mortality in Lagos, Nigeria (1993-1994)*. *Nig. Qt. J. Hosp: Med*. 1996; 6(2): 88-95.
11. Beyaztas FY, Dokgoz H, Saka E, Citici I, Buton C. *Evaluation of childhood deaths in Istanbul, Turkey*. *Middle East J. family med*. 2007; 5 (2): 38-41.
12. Amakiri CN, Akang EE, Aghadiuno PU and Odesanmi WO. *A prospective study of coroner's autopsies in UCH, Ibadan Nigeria*. *Med Sci Law*. 1997; 37(1): 69 - 75.
13. Etebu EN and Nwosu SO. *Medicolegal autopsies in University of Port Harcourt, Nigeria*. *Nig Jnl Orthopaedics and Trauma*. 2003; 2(1): 33 - 35.
14. Etebu EN, Ekere AU. *Paediatric accidental deaths in Port Harcourt, Nigeria: a 10-year retrospective study*. *Niger J Med*. 2004; 13 (2): 140 - 143.
15. Bener A, Hyder AA, and Schenk E. *Trends in childhood injury mortality in developing country: United Arab Emirates*. *Accid Emerg Nurs*. 2007; 15 (4): 228 – 233.
16. Pearson J, Stone DH. *Pattern of injury mortality by age-group in children aged 0-14 years in Scotland, 2002-2006, and its implication for prevention*. *BMC pediatr*. 2009; 9:26-30.
17. Bannon MJ, Carter YH, Mason KT. *Causes of fatal childhood accidents in North Stoddardshire, 1980-1989*. *Arch Emerg Med*. 1992; 9 (4): 357 – 366.
18. Onwuachi-Sanders C, Forjuoh SN, West P, Brooks C. *Child death reviews: a gold mine for injury prevention and control*. *Injury prevention* 1999; 5: 276 – 279.
19. Cekin N, Hilal A, Gulmen MK, Kar H, Aslan M. et al. *Medicolegal childhood deaths in Adana, Turkey*. *Tohokuj. Exp. Med*. 2005; 206 (1): 73-80.