ORIGINAL ARTICLE

Audit of Medico Legal Death in Metropolitan City of Warri, Nigeria.

ABSTRACT

Aim: To describe the various medico legal autopsy cases with respect to sex, age, cause and manner of death.
Material and Methods: This is a descriptive retrospective study of 972 medico-legal autopsy cases studied in Warri Metropolis from 1st Jan. 2003 to 31th December 2016. The relevant information was extracted and subsequently analyzed statistically using SPSS version 22.
Results: A total of 972 cases of medico legal autopsies of 843 males against 129 females were studied. Their ages of victims ranged from 0.4 years to 85 years, with a mean of 34.45 years and a peak age group in their 3rd decade. Homicidal, accidental, sudden natural, suicidal, and indeterminate cases accounted for 55.7% (541), 24.7% (240), 17.3% (168), 1.4% (14) and 0.9% (9) of the cases respectively. Firearm injuries, sharp weapon and blunt injuries, accounting for 374 (69.1%), 122(22.6%) and 37(6.8%) of homicide cases. Road traffic accident, drowning, burns injury and electrocution accounted for 119(49.6%), 34(14.2%), 26(10.8%) and 19(7.9%) of accidental cases respectively. Cardiovascular, Central nervous system-related and infectious diseases are responsible for 79(47.0%), 21(12.5%) and 15(8.9%) of sudden natural deaths observed in this study. Hanging and corrosive chemical ingestion accounted for 10(71.4%) and 4(28.6%) respectively of the suicide cases, and together representing a MFR of 3.7:1.

Conclusion: Our study showed that firearm injuries, road traffic accident and sharp weapons injuries are the leading cause of unnatural death while cardiovascular diseases account for most cases of sudden natural deaths

Key word: Medicolegal. Unnatural Homicide Accident Autopsy Suicide.

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INTRODUCTION

Medico legal autopsy are special type of systematic and scientific examination of a dead body performed primarily in obedience to an inquest act to protect its inhabitants, and to assist in identification and prosecution of offenders in cases of unnatural deaths. 1In English legal system, which Nigeria is historically associated with, the person who conducts such an inquest is called a coroner 2 and the fundamental objectives of such inquest are to ascertain the identity of the dead person, the date and time of death, the place where the death had occurred and the cause and manner of death. 3 It is also at the discretion of the coroner to decide the scope of such inquest.

All forms of unnatural deaths (suicidal, accidental, homicidal), death within state custody or in mental asylum or natural death occurring in suspicious circumstance are indications for medico legal autopsy.4

The medical aspect of this bi-faceted (medical and legal) investigation is performed by the forensic pathologist to determine exact cause and manner of death, establish identity of the deceased, determine time since death, collect trace evidence, reconstruction of the crime scene, correlate his findings with the circumstances surrounding the death and above all demystify the cause the death. 3 Besides accurate death certification, accurate mortality statistics from autopsy has been shown to be an essential tool for public health monitoring and health service planning.5

While there have been substantial published reports on this subject matter in some cities of Nigeria, no such study has been done previously in Warri, the commercial capital city of Delta state Nigeria. This study is therefore aimed at determining the age and sex disparities, as well as the causes and manners of medico legal deaths confirmed through autopsy studies in the Metropolis of Warri, Delta state Nigeria.

MATERIALS AND METHODS

This retrospective descriptive study covered a period of fourteen years from 1st January 2003 to 31st December, 2016. It included all the cases of medico legal deaths subjected to post-mortem examination at Central hospital Warri, and other private mortuaries in the metropolitan city of Warri.

A detailed post-mortem examination was conducted in each of the cases by the authors to determine the cause and manner of death. Further to this, histological and toxicological investigations were carried out where necessary. Information on the age and sex of these cases were extracted from the requisition forms of the investigating police officers.

Exclusion criteria:

1. All medico-legal deaths with no requisition for autopsy were excluded from the study.
2. All dead bodies with a requisition for partial or limited post-mortem examination were excluded from the analysis.

This information was statistically analyzed using SPSS version 22. The mean, frequency and percentages of relevant parameters were calculated and presented in tables and figures.

RESULTS

Results here A total of 972 cases of medico legal deaths with post mortem examination were encountered during the study year, representing 97% of all autopsies performed in the various centers. Figure I show the yearly distribution of the cases as well as those of the various manners of death. There were 843 males against 129 female representing a male-female ratio (MFR) of 13:1. Their ages of victims ranged from 0.4 years to 85 years, with a mean of 34.45 years and a peak age in their 3rd decade, representing 34.6% (336) of all the cases. Their age and sex distribution are shown in table I.

A detail of the age distribution of the various manners is shown in table II. Homicidal, accidental, sudden natural, suicidal, and indeterminate cases accounted for 55.7% (541), 24.7% (240), 17.3% (168), 1.4% (14) and 0.9% (9) of the cases respectively.

The causes of homicidal deaths according to their sexes are shown in table III. A MFR ratio of 10:1 is observed with firearm injuries, sharp weapon and blunt injuries, accounting for 374 (69.1%), 122(22.6%) and 37(6.8%)

Firearms, sharp weapons, blunt weapons, and strangulation accounted for 374 (69.1%), 122 (22.6%), 37(6.8%) and 6(1.1%) of homicidal deaths, with a MFR of 10:1.

The MFR of accidental death is 6.8:1 and the major causes include road traffic accident, drowning, burns injury and electrocution representing 119(49.6%), 34(14.2%), 26(10.8%) and 19(7.9%) cases respectively: The details are shown in table IV.

Cardiovascular, Central nervous system-related and infectious diseases are responsible for 79(47.0%), 21(12.5%) and 15(8.9%) of sudden natural deaths observed in this study. Of these cases, the MFR of is 13: 4. The details is shown in table V.

Hanging and corrosive chemical ingestion accounted for 10(71.4%) and 4(28.6%) respectively of the suicide cases, and together representing a MFR of 3.7:1. This is depicted in table VI.

In relation to violent death, firearm injuries, road traffic accident and sharp weapon injuries were the leading causes, accounting respectively for 374(38.5%),133 (13.7%) and 122 (12.6%) deaths.

Figure 1: YEARS TREND OF AUTOPSY OVER 14 YEAR STUDY PERIOD

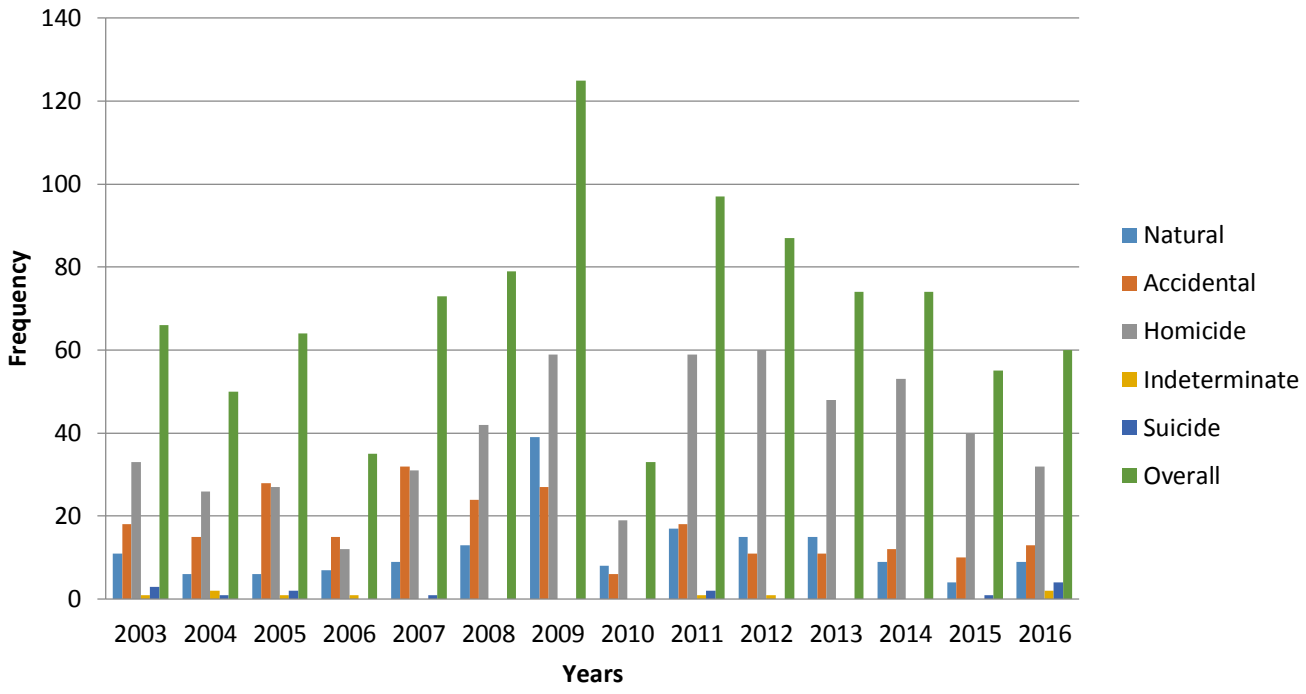

Table 1: Age and Sex Distribution of Cases

Age Group	Male [No (%)]	Female [No (%)]	Total Frequency
0 - 10 yrs	15 (65.2)	8 (34.8)	23 (2.4%)
11 - 20 yrs	89 (83.2)	18 (16.8)	107 (11%)
21 - 30yrs	295 (87.8)	41 (12.2)	336 (34.6%)
31 - 40yrs	210 (89.7)	24 (10.3)	234 (24.1%)
41 - 50yrs	129 (89)	16 (11)	145 (14.9%)
51 - 60yrs	60 (81.1)	14 (18.9)	74 (7.6%)
61 - 70yrs	28 (82.4)	6 (17.6)	34 (3.5%)
71 - 80yrs	13 (86.7)	2 (13.3)	15 (1.5%)
81 - 90yrs	4 (100)	nil	4 (0.4%)
Total	**843 (86.7)**	**129 (13.3)**	**972 (100%)**

Table 2: Manner of Death (According to Age Group

Age Group	ACCIDENTAL	HOMICIDE	INDETERMINATE	NATURAL	SUICIDE	Total (%)
0 - 10 yrs	9 (39.1)	8 (34.8)	2 (8.7)	3 (13)	1 (4.3)	23 (2.4%)
11 - 20 yrs	29 (27.1)	65 (60.7)	1 (0.9)	8 (7.5)	4 (3.7)	107 (11%)
21 - 30yrs	82 (24.4)	213 (63.4)	4 (1.2)	32 (9.5)	5 (1.5)	336 (34.6%)
31 - 40yrs	60 (25.6)	132 (56.4)	2 (0.9)	37 (15.8)	3 (1.3)	234 (24.1%)
41 - 50yrs	32 (22.1)	76 (52.4)	nil	37(25.5)	nil	145 (14.9%)
51 - 60yrs	15 (20.3)	29 (39.2)	nil	30 (40.5)	nil	74 (7.6%)
61 - 70yrs	8 (23.5)	12 (35.3)	nil	13 (38.2)	1 (2.9)	34 (3.5%)
71 - 80yrs	2 (13.3)	6 (40)	nil	7 (46.7)	nil	15 (1.5%)
81 - 90yrs	3 (75)	nil	nil	1 (25)	nil	4 (0.4%)
Total	**240**	**541**	**9**	**168**	**14**	**972 (100%)**

Table 3: Homicide Cases Showing Sex Distribution

Types	Male	Female	No of Cases	% of Cases
Blunt weapon injuries	30	7	37	6.8%
Sharp weapons	114	8	122	22.6%
Fire arm	344	30	374	69.1%
Ritual Killing	nil	2	2	0.4%
Strangulation	4	2	6	1.1%
Total	**492**	**49**	**541**	**100%**

Table 4: Accidental Cases Showing Sex Distribution

Types	Male	Female	No of Cases	% of Cases
Alcoholic Intoxication	1	nil	1	0.4%
Asphyxia Aspiration	1	nil	1	0.4%
Burns	15	11	26	10.8%
Criminal Abortion	0	5	5	2.1%
Carbon monoxide poisoning	5	nil	5	2.1%
Drowning	33	1	34	14.2%
Drug Reaction	0	1	1	0.4%
Electrocution	18	1	19	7.9%
Fall	6	2	8	3.3%
Foreign body impaction	2	nil	2	0.8%
Industrial Accident	3	nil	3	1.3%
Lighting strike	1	nil	1	0.4%
RTA	119	14	133	55.4%
Suffocation	1	nil	1	0.4%
Total	**205**	**35**	**240**	**100%**

TABLE 5: **Sudden Natural Death**

ORGAN-SYSTEM (PERCENTAGE)	SPECIFIC DISEASE	SEX DISTRIBUTION		
		MALE	FEMALE	FREQUENCY
Bone[2(1.2%)]	Osteomyelitis	1(0.6)	1(0.6%)	2(1.2%)
	Breast cancer	0	1(0.6%)	1(0.6%)
	Vulva cancer	0	1(0.6%)	1(0.6%)
Cancer [4(2.3%)]	Prostate cancer	2(1.2%)	0	2(1.2%)
	Basal meningitis	2(1.2%)	0	2(1.2%)
	Encephalitis	0	1(0.6%)	1(0.6%)
	Cerebrovascular accident	11(6.6%)	3(1.8%)	14(8.3%)
	Ruptured berry aneurysm	1(0.6%)	1(0.6%)	2(1.2%)
CNS [21(12.5%)]	Seizure disorder	2(1.2%)	0	2(1.2%)
	hypertensive heart dx	45(26.8%)	4(2.4%)	49(29.2%)
	aortic dissection	1(0.6%)	0	1(0.6%)
	Hypertrophic cardiomyopathy	5(3.0%)	0	5(3.0%)
	Dilated cardiomyopathy	8(4.8%)	1(0.6%)	9(5.4%)
CVS[79 (47.0%)]	Coronary artery disease	11(6.6%)	4(2.4%)	15(9.0%)
Endoc[1(0.6%)]	Diabetes mellitus	0	1(0.6%)	1(0.6%)
Genetic[1(0.6%)]	Sickle cell anaemia	0	1(0.6%)	1(0.6%)
	Peptic ulcer disease	5(3.0%)	0	5(3.0%)
	Ischemic bowel disease	0	1(0.6%)	1(0.6%)
GIT [7(4.2)]	Enterocolitis	1(0.6%)	0	1(0.6%)
	Ruptured ectopic pregnancy	0	4(2.4%)	4(2.4%)
GYN [5(3.0%)]	incomplete abortion	0	1(0.6%)	1(0.6%)
	Anemia	2(1.2%)	1(0.6%)	3(1.8%)
	leukemia	0	1(0.6%)	1(0.6%)
HEMAT [5(3.0%)]	Disseminated Intravascular coagulopathy	1(0.6%)	0	1(0.6%)
	Malaria	3(1.8%)	1(0.6%)	4(2.4%)
Infectious diseases [15(8.9%)	tuberculosis	1(0.6)	0	1(0.6%)
	septicemia	5(3.0)	5(3.0%)	10(6.0%)
	chronic hepatitis	2(1.2%)	1(0.6%)	3(1.8%)
	amoebic liver dx	1(0.6%)	0	1(0.6%)
Liver [5(3.0%)]	Liver cirrhosis	1(0.6%)	0	1(0.6%)
Miscellaneous [2(1.2%)]	malnutrition	2(1.2%)U	0	2(1.2%)
	Puerperal sepsis	0	1(0.6%)	1(0.6%)
	Prolonged obstructed labor	0	1(0.6%)	1(0.6%)
Obstetric [3(1.8%)]	Anemia in pregnancy	0	1(0.6%)	1(0.6%)
Pancreas 1(0.6)	pancreatitis	1(0.6%)	0	1(0.6)
Renal[6(4.0)	CGN	3(1.8)	1(0.6%)	4(2.4)

	Acute Renal Failure	2(1.6%)	0	2(1.6%)
Respiratory system [10(6.0)]	Asthma	2(1.6%)	1(0.6%)	2(1.6%)
	pneumonia	7(4.2%)	1(0.6%)	8(4.8%)
total		128(76.2)	40(23.8%)	168(100%)

Table 6: Suicide Cases Showing Sex Distribution

Types	Male	Female	No of Cases	% of Cases
Hanging	10	nil	10	71.4
Suicidal Ingestion	1	3	4	28.6
Total	**11**	**3**	**14**	**100.0**

DISCUSSION

Discussions here Medico legal autopsies account for 97% of all autopsies performed in Warri metropolis, which is relatively higher than those observed in other centers in Nigeria. Perhaps, this is because earlier works in the country were done in tertiary centers where there are hospital policies applied on medico legal deaths. In the setting of this study, which consist of a secondary health care center, and some metropolitan private mortuary, autopsies were carried out basically when the police office investigating such cases makes requisition. Minority of cases are requests from families for proper death certification or to satisfy their curiosity.

We observed that there has been a consistent decline in yearly number of medico legal autopsy performed over the last six year. We might assume from this that there is a decline in the rate of medico legal autopsies and consequently a decline in medico legal deaths. One of the important policy changes in the corresponding years was the ban on use of motor cycles as a means of intra-city transportation within the Warri metropolis, and how this impacted on the decline in medico legal death is worth studying.

The MFR for medico legal cases of 13:1 is significantly higher than 4.5:1 reported in North central Nigeria,6 3.1:1 reported in Port Harcourt;7 1.9:1 reported by Akhiwu in Benin city;8 and 1.7:1 in Ibadan.9 This relatively high MFR ratio may be attributed to the socioeconomic activity of the community, previous tribal clash, cultism, proliferation of small arms, and consequences of oil exploration.

The peak age of medico legal deaths corresponded to the 3rd, and is closely followed by the 4th decade accounting for 34.6% and 24.1% of the cases respectively. This is comparable to earlier reports in other part of Nigeria.7,8,9 These age groups are unarguably activity prone, restive and daring. The worrisome high premature violence related death calls for urgent youth reorientation.

Homicidal death rate in this study is leading indication for medico legal autopsy in our study. This is a sharp contrast from reports in Benin8 and Ibadan9 where sudden natural deaths is the most common indication; and that reported by Obiorah in Port Harcourt 10 where accidental deaths leads. This may be a consequence of lawlessness, inter-ethnic clashes, rapid urbanization and population growth, the oil curse, unemployment, proliferating small arms, pipeline vandalism and militancy characterizing struggle for emancipation of people of Niger delta.

Gunshot injuries unfortunately accounted for about 70% of the homicidal deaths in this study. This concur with reports from Benin, 8 Jos 6 and the Nigerian capital city of Abuja. 11One possible

explanation is the growing number civilians possessing firearms and as a result, attendant morbidity and mortality. Other possible reasons include illicit arm deals, porous land and water borders, compromised law enforcement agents and the lawlessness of the society. We might deduce too that illegal wealth acquisition from illicit oil deals correlates positively with the abuse of firearms.

Sharp and pointed edge weapons are the second most commonly used tool for homicidal death in this study. These range from stab wounds, cut wounds and chop wounds executed using machetes, knives, daggers, axe, scissors, knitting needles, razor and other bladed instruments. The choice of these instruments may be related to their cheapness, availability and the occupational trend of the assailant. The vulnerability of the part of the body affected determines the fatality. The present socioeconomic problem and the lawlessness of the society cannot be over-emphasized. There is therefore need for urgent reversal of this trend.

Drowning is the second most common cause of accidental deaths with a MFR of 33:1, which is evidently higher than the MFR (2.9:1) reported by Fubara and Nicholas in Port Harcourt, Nigeria.12 Warri metropolis is undoubtedly enriched with numerous inland natural water such as rivers, creeks and streams; and swimming pools. The lack of barriers preventing access to water, absence of adult supervisor, inadequate swimming skills, underestimation of the inherent danger, alcohol and substance abuse, use of water as means of transportation, lack of safe water supply as well flood-related disasters are proposed risk factors. 13Recent research suggests that the higher tendency of young males towards risk-taking adventures underlines their differential vulnerability.14

Electrocution accounted for 2% of medico legal death in this study which is consistent with the reported medico legal death rate of 1.90-3.3% reported in other countries.15,16,17 The robust construction and industrial activity as well as rapid urbanization exposes many workers to the risk of electrocution. If safety training is recognized and safety practice imbibed in the work culture, work-related electrocution will be brought to the barest minimum.

The number of death resulting from carbon monoxide poisoning is as a result of use of gasoline generators following perpetual state of erratic power-supply. In addition, overcrowding and non-enforcement of standard building plans provide a fertile ground for this preventable cause of death. It might be argued that this evil will be a thing of the past if power supply is stabilized in the country.

Accidental deaths are relatively common and are the second most common cause of violent death in this study, lagging significantly behind the number of homicide cases. This may not be unrelated with the coroner's choice on which cases should be subjected to most-mortem examination. It might be argued that the manner of death may be obvious in accidental death like road traffic accidents, a situation that might favor non-performance of autopsy.

Expectedly, over half of all accidental deaths result from RTA, an observation which concurs with reports from other researcher. This may be a consequence of reckless driving, bad roads, and increasing number of automobiles of the road, use of motorcycles as a means of transportation, and defiance to traffic rules or traffic officials.

Sudden natural death accounted for 17.4% of medico legal deaths in this study which is remarkably lower than those reported in Ibadan([55.6%),9 Benin (30.3%)18 but similar to report from Pelemo et al in Ile Ife. 19 This tilt in balance may be a reflection of the high rate of violence in the environment of study. On the other hand, it may be related to the non-enforcement of hospital policy on coroner autopsy policy in a secondary hospital centre.

Our study showed that majority of deaths was related to the cardiovascular system which corelated with findings of Amakire, Ugiagbe, and Akhiwu in their respective studies.8, 9,18

The cardiac causes were dominated by hypertension, coronary artery disease and cardiomyopathies, with hypertension being the single most common cause of sudden natural death in this report. With a MFR of about 3:1, being a male is unarguably a strong risk factor for sudden death. This is perhaps because of the protective effect of estrogen on women's cardiovascular health.20

The next most common cause of death was related to the central nervous system, which is mainly due to cerebrovascular accidents. Infections are third on the list, with septicemia accounting for majority of the cases, while cancer and diseases affecting other systems account for minority of the cases.

Our report showed that suicidal death is rare, accounting for 1.4% of medico legal deaths, which is consistent with reports in other parts of the country, 8, 9,21 but contrasts sharply with higher rate reported in developed countries.22,23 The possible explanation to this low rate in our environment is the cultural and religious system which stigmatizes suicidal death.9, 22 The relative male predominance seems to follow the trend of other violent death seen in this study.

CONCLUSION

In conclusion, our study showed that firearm injuries, road traffic accident and sharp weapons injuries are the leading cause of unnatural death while cardiovascular diseases account for most cases of sudden natural deaths.

APPRECIATION

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REFERENCES

1. Parikh CK. Medicolegal autopsy. In: Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. New Delhi: CBS publisher and Distributors; 2006. 2.39.
2. Coroner's law of Northern Nigeria; Cap. 27 of 1963.
3. Kotabagi RB, Charati SC, Jayachandar D. Clinical Autopsy vs Medico legal Autopsy. MJAFI 2005; 61: 258-263.
4. Mirza FH, Hassan Q, Naz R, Khan M. Spectrum of Medico-legal deaths in Metropolis of Karachi: An autopsy based study. Pakistan Journal of Medicine and Dentistry. 2013; 2(04): 4-5.
5. Roulson J, Benbow EW, Hasleton PS. Discrepancies between clinical and autopsy diagnosis and the value of post-mortem histology; a meta-analysis and review. Histopathology. 2005; 47: 551-559
6. Mandong BM, Manasseh AN, Ugwu BT. Medicolegal autopsies in North Central Nigeria.East Afr Med J. 2006:83(11); 626-30.
1. Etebu EN, Nwosu SO. Medicolegal Autopsies in Port Harcourt, Nigeria. Nig Jnl Orthopaedics and Trauma 2003; 2(1):33-35.
7. Akhiwu WO, Nwafor CC, Igbe AP. A 20 year retrospective analysis of medicolegal deaths in a tertiary hospital setting in Nigeria. Niger J Clin Pract 2013;16:535-9.
8. Amakiri CN, Akang EE, Aghadiuno PU, Odesami WO. A prospective study of coroner's autopsies in University College Hospital, Ibadan, Nigeria. Med Sci Law 1997; 37: 69-75.
9. Obiorah C, Musa S, Amakiri C. Coroner autopsy finding among children and adolescents of Rivers state of Nigeria. The Nigerian Health Journal. 2024:14; 26-28.
10. Duduyemi BA, Ojo BA. Coroner's autopsies in Nigerian capital city: A review of 65 consecutive cases. Indian journal of forensic medicine & toxicology. 2014: 8;53-57.
11. Seleye-Fubara D, Nicholas EE, Ese I. Drowning in Niger Delta region of Nigeria: An autopsy of 85 cases. The Nigerian Postgraduate Medical Journal.2012: 19(2);111-114.
12. World Health Organization. Global report on drowning: preventing a leading killer. Geneva: World Health organization. http//apps.who.int/iris/bitstream/10665/143893/1/9789241564786_eng.pdf?ua=1&ua=1(accessed 16th February, 2017.)
13. Davis S, Ledman J, Kilgore J. Drowning of children and youth in a desert state. West J Med. 1985:143; 196-201.
14. Bayaztas FY, Demirkan O, Colak S. The evaluation of fatal and nonfatal injuries due to electrocution in Sivas, Turkey between 1996-2000. J Forensic Med.2002: 15; 1-6.
15. Rautji R, Rudra A,Behera C et al. Electrocution in South Delhi: a retrospective study. Med Sci Law.2003:43(4); 350-352.
16. Cekin N, Hilal A, Gulmen MK et al. Medicolegal childhood death in Adana Turkey. Tohoku J Exp Med. 2005:206; 73-80.
17. Ugiagbe EE, Ugiagbe RA. Causes of sudden natural death: a medico-legal autopsy study of medical cases in an African referral Centre. East African Medical Journal 2012:89(10);332-8.
18. Pelemo OE, Sabageh D, Komolafe AO, Sabageh AO, Odesanmi WO. An autopsy review of sudden unexpected natural deaths in a suburban Nigerian population. Population Health Metrics 2014:12;1-6.
19. Mendelsohn ME, Karas RH. The protective effects of estrogen on the cardiovascular system. N Engl J Med 1999:340; 1801-11.
20. Offiah S, Obiorah CC. Pattern of suicide in Nigeria: the Niger Delta experience. J Med Investig Pract. 2014:9; 8-11.
21. Thompson IG. Homicide and suicide in Africa and England. Med Sci Law 1980: 20; 99-103.

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