Results

Table (1): Number and percentage of deaths due to traumatic head injuries each year in relation to the total number of deaths received in the same period of the study per each year.

Years	Deaths due to traumatic head injury	Total number of deaths	%
2005	120	2223	*5.4*
2006	88	1470	*6*
2007	52	984	*5.3*
2008	104	1922	*5.4*
2009	105	1971	*5.3*
Total	469	8570	*27.4*

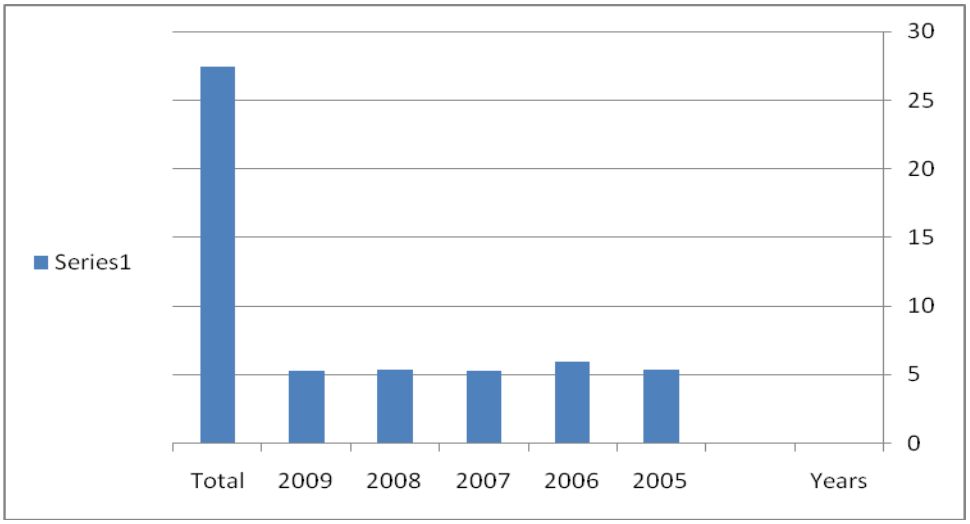

Fig (1a): Number and percentage of deaths due to traumatic head injuries each year in relation to the total number of deaths received in the same period of the study per each year**.**

The number of fatal traumatic head injury represent (27.4%) of total number of deaths during the period of the study**.**

Table (2): Number and percentage of head injury deaths due to traumatic causes each year in relation to the total number of traumatic brain deaths received in the period of the study.

Years	Deaths due to traumatic head injury	%
2005	120	25.5
2006	88	18.8
2007	52	11.1
2008	104	22.2
2009	105	22.4
Total no. of traumatic brain deaths	469	100

This table shows number and percentage of head injury deaths due to traumatic causes each year in relation to the total number of traumatic brain deaths (469) received in the same period of the study. It clearly illustrates up-ward increasing in number and percentage of the victims throughout all the years of the study.

Table (3): Distribution of the studied group according to the age of the victims during the period of the study.

Age/Year	Number	%
<10 (1st decade)	17	3.6
10-20(2nd decade)	58	12.4
20-30(3rd decade)	151	32.2
30-40(4th t decade)	**77**	**16.4**
40-50(5th decade)	73	15.6
50-60(6th decade)	49	10.4
60-70(7th t decade)	27	5.8
70-80(8th decade)	16	3.4
>80years	1	2
Total	469	100.0

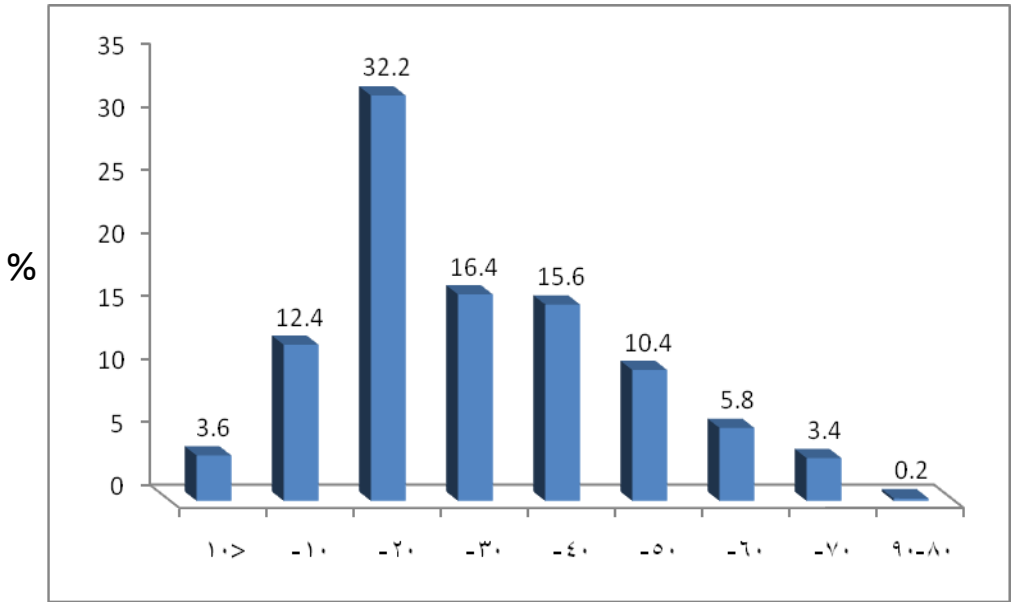

Fig. (2a) Distribution of the studied group according to the age of the victims.

This table and figure show the high prevalence number and percentage of the victims the middle age especially from (20-30) years old and low number and percentage in extreme of the age (<10 years old >60 Years old).

Table (4): Distribution of the studied group according to the gender of the victims during the period of the study.

Gender	Number	%
Males	**351**	**74.8**
Females	**118**	**25.2**
Total	**469**	**100.0**

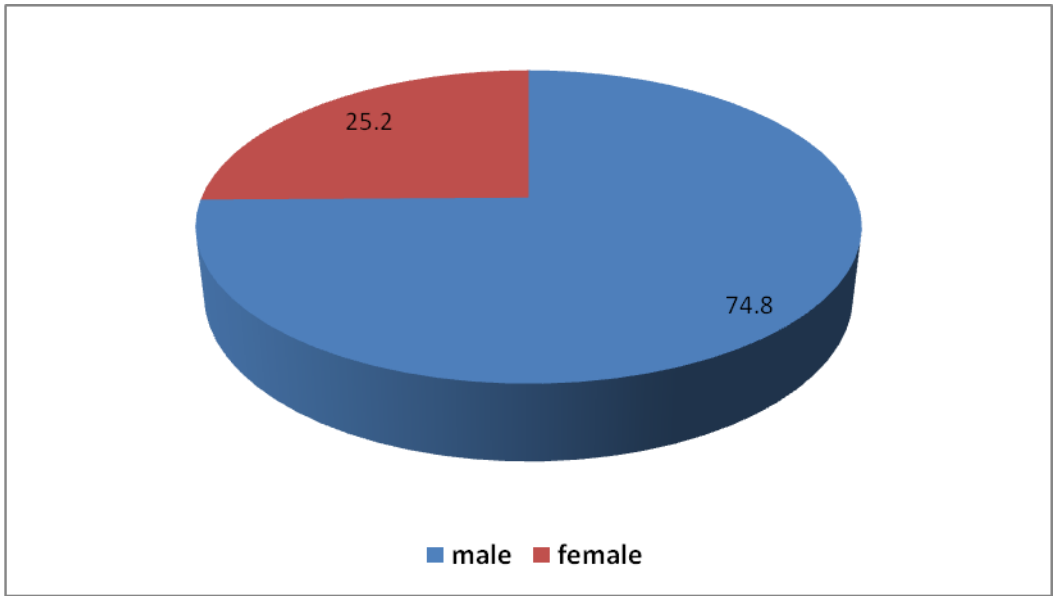

Fig. (3a): Distribution of the studied group according to the gender of the victims.

This table and figure show the high prevalence number and percentage of males than females.

Table (5): Distribution of the studied group according to the place of death of the victims during the period of the study.

Place of death	Number	%
At scene	199	42.4
At hospital	254	54.2
During transportation	16	3.4
Total	469	100.0

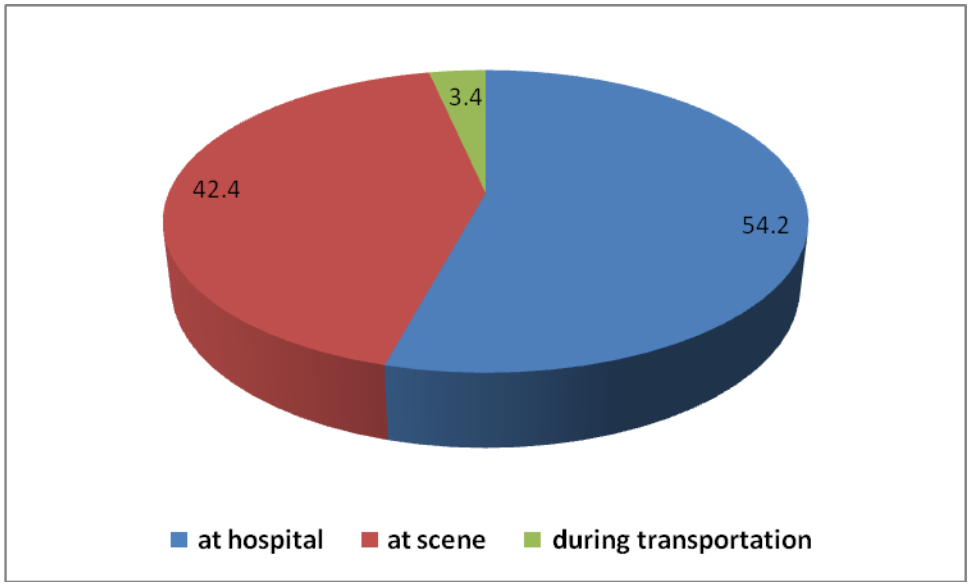

Fig. (4a): Distribution of the studied group according to the place of death of the victims.

This table and figure clearly illustrate the most of the victims with traumatic head injuries died at hospital.

Table (6): Distribution of the studied group according to the type of trauma during the period of the study.

Type of trauma	Number	%
Blunt trauma	381	81.2
Penetrating trauma	88	18.8
Total	469	100

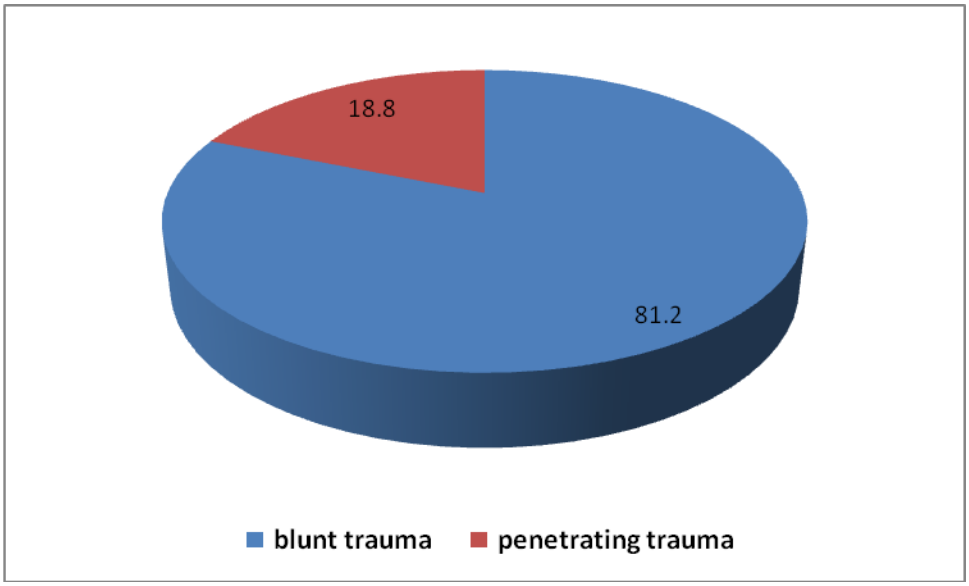

Fig. (5a): Distribution of the studied group according to the type of trauma.

This table and figure clearly illustrate the higher prevalence number and percentage of blunt trauma as a type of traumatic head injuries.

Table (7): Distribution of the studied group according to the causative agent

Causative agent	Number	%
Blunt object	213	45.4
fall from high	150	32.1
firearm rifled	48	10.2
firearm non rifled	30	6.4
motor vehicle accident	17	3.6
sharp edge & stab in eye	11	2.3
Total	469	100.0

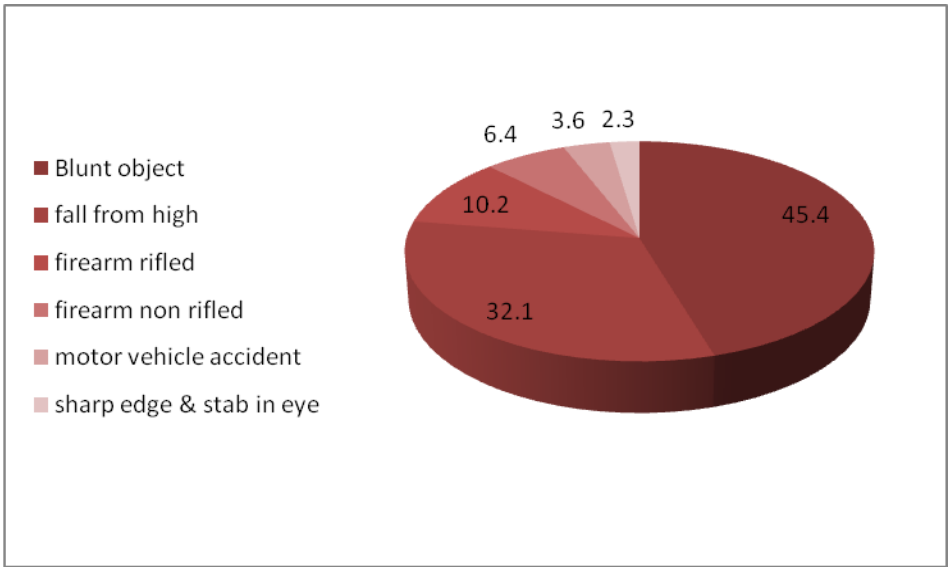

Fig. (6a): Distribution of the studied group according to the causative agent

This table and figure show the high prevalence number and percentage of blunt object as a causative agent followed by fall from height. They also show that rifled firearm weapon is more prevalent than non rifled one.

Table (8): Distribution of the studied group according to the mechanism of death.

Mechanism of death	Number	%
ICH& Brain damage	**160**	**34.1**
ICH	**291**	**62**
Brain concussion	**12**	**2.6**
Encephalitis	**2**	**0.4**
Hypostatic pneumonia	**4**	**0.9**
Total	**469**	**100**

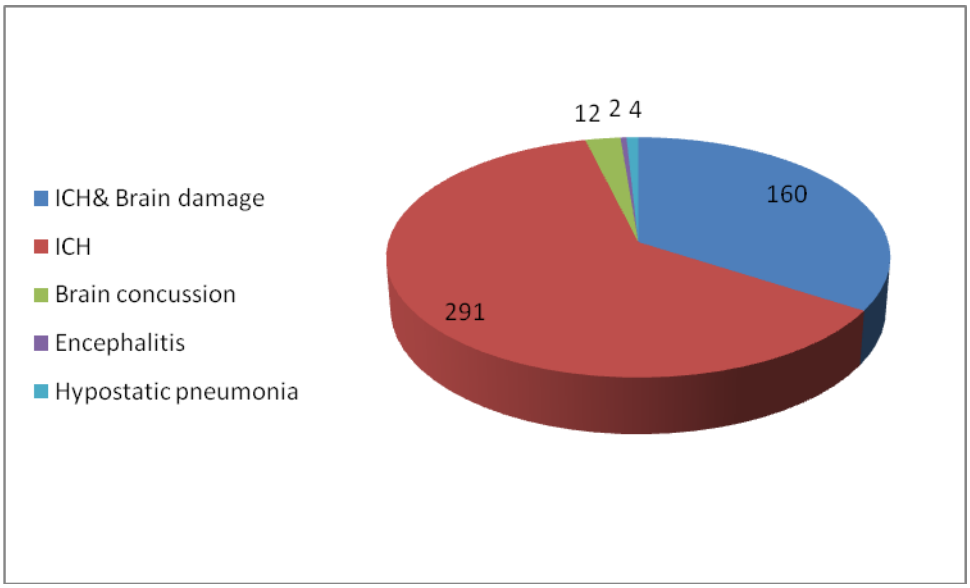

Fig.(7a): Distribution of the studied group according to the mechanism of death.

This table and figure show the high prevalence number and percentage of ICH followed by combined ICH & Brain damage as mechanisms of death.

Table (9): Distribution of the studied group according to the manner of death.

Manner of death	Number	%
Homicidal	333	71.0
Suicidal	81	17.3
Accidental	54	11.5
Undetermined	1	0.2
Total	469	100.0

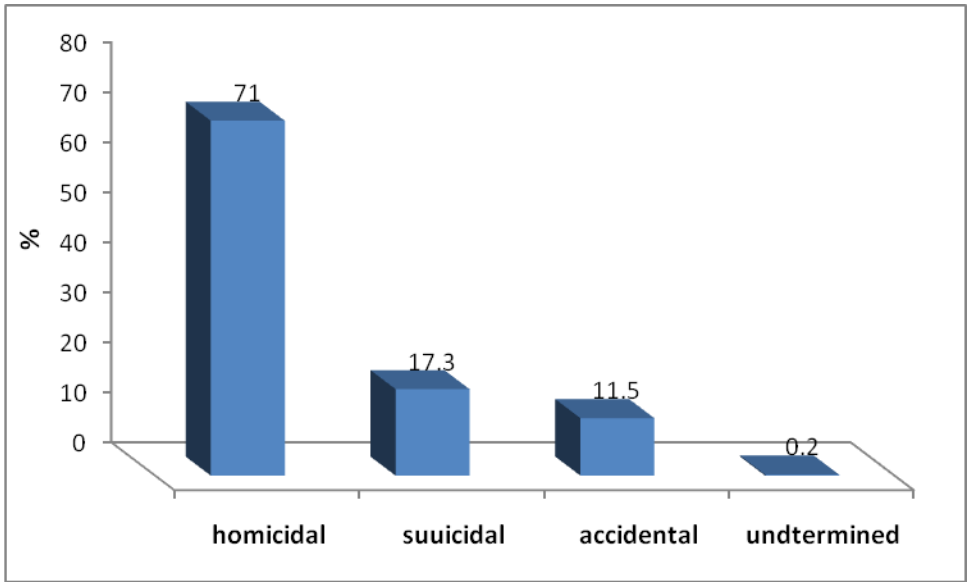

Fig.(8a): **Distribution of the studied group according to the manner of death.**

This table and figure show the higher prevalence number and percentage of homicidal cases as a manner of death of traumatic head injuries among the studied group.

Table (10): Distribution of the studied group according to the type of trauma and age of the victims.

Age			type of trauma		Total
			blunt trauma	penetrating trauma	
	<10	Count	16	1	17
		% within age	94.1%	5.9%	100.0%
	10-	Count	43	15	58
		% within age	74.1%	25.9%	100.0%
	20-	Count	121	30	151
		% within age	80.1%	19.9%	100.0%
	30-	Count	61	16	77
		% within age	79.2%	20.8%	100.0%
	40-	Count	59	14	73
		% within age	80.8%	19.2%	100.0%
	50-	Count	42	7	49
		% within age	85.7%	14.3%	100.0%
	60-	Count	23	4	27
		% within age	85.2%	14.8%	100.0%
	70-	Count	15	1	16
		% within age	93.8%	6.3%	100.0%
	>80	Count	1	0	1
		% within age	100.0%	.0%	100.0%
Total		Count	381	88	469
		% within age	81.2%	18.8%	100.0%

X^2=6.9 **P>0.05**

This table shows the high prevalence number and percentage of the victims in the middle age especially from (20-30) years old in blunt trauma. The results were found to be stastically insignificant.

Table (11): Distribution of the studied group according to the type of trauma and gender of the victims.

Gender		Type of Trauma		Total
		Blunt trauma	Penetrating trauma	
Male	Count	273	78	351
	%	77.8%	22.2%	100.0%
Female	Count	108	10	118
	%	91.5%	8.5%	100.0%
Total	Count	381	88	469
	%	81.2%	18.8%	100.0%

Corrected X^2 =10.1 **P<0.01**

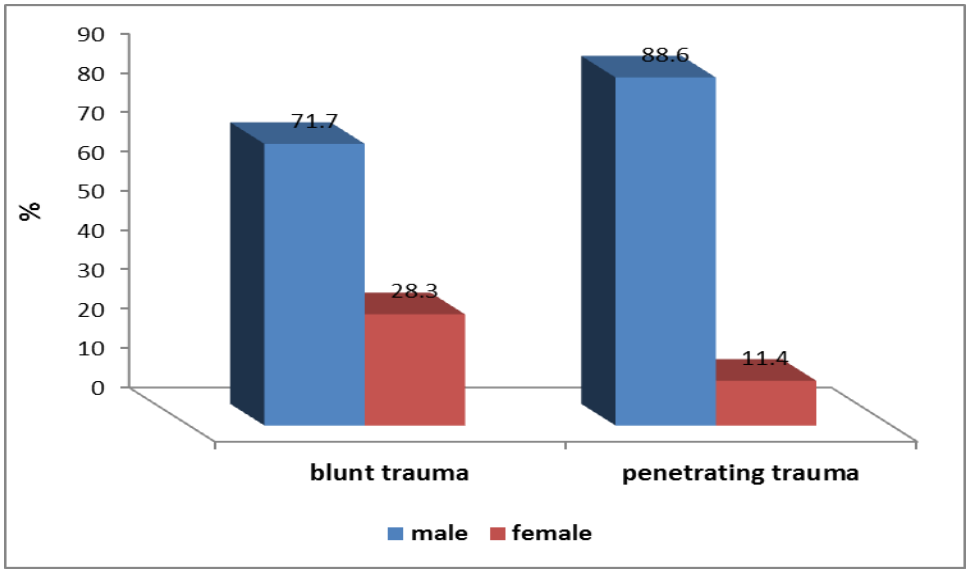

Fig. (9a): Distribution of the studied group according to type of trauma and gender of the victims.

This table and figure show that the blunt trauma is more prevalent of in both gender. While the penetrating trauma is more prevalent in males than females. The differences between males and females in relation to type of trauma were found to be statistically significant.

Table (12): Distribution of the studied group according to the type of trauma and place of death..

place of death		type of trauma		Total	Z	P
		blunt trauma	penetrating trauma			
at scene	Count	159	40	199	-0.64	>0.05
	%	41.7%	45.5%	42.4%		
at hospital	Count	209	45	254	0.63	>0.05
	%	54.9%	51.1%	54.2%		
During transportation	Count	13	3	16	--	--
	%	3.4%	3.4%	3.4%		
Total	Count	381	88	469		
	%	100.0%	100.0%	100.0%		

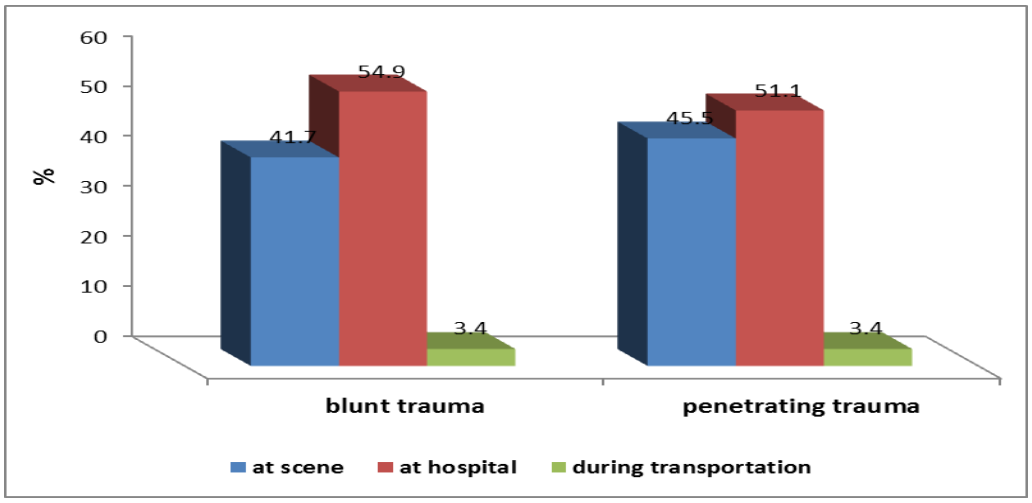

Fig. (10a): Distribution of the studied group according to type of trauma and place of death.

This table and figure show that the most of the victims with head injuries whether blunt or penetrating trauma died either at hospital or at scene. It also shows that blunt trauma has higher mortality rate during transportation more than the penetrating trauma. This difference between blunt and penetrating trauma in relation to place of death eas found to be statistically insignificant.

Table (13): Distribution of the studied group according to type of trauma and mechanism of death.

Type of trauma		Mechanism of death					Total
		ICH & Brain damage	ICH	Brain concussion	Encephalitis	Hydrostatic pneumonia	
blunt trauma	No.	81	282	12	2	4	381
	%	21.3%	74.0%	3.1%	.5%	1.0%	100.0 %
penetrating trauma	No.	79	9	0	0	0	88
	%	89.8%	10.2%	.0%	.0%	.0%	100.0 %
Z		12.2	11.1	1.69	0.68	0.96	
P		<0.001	<0.001	<0.05	>0.05	>0.05	

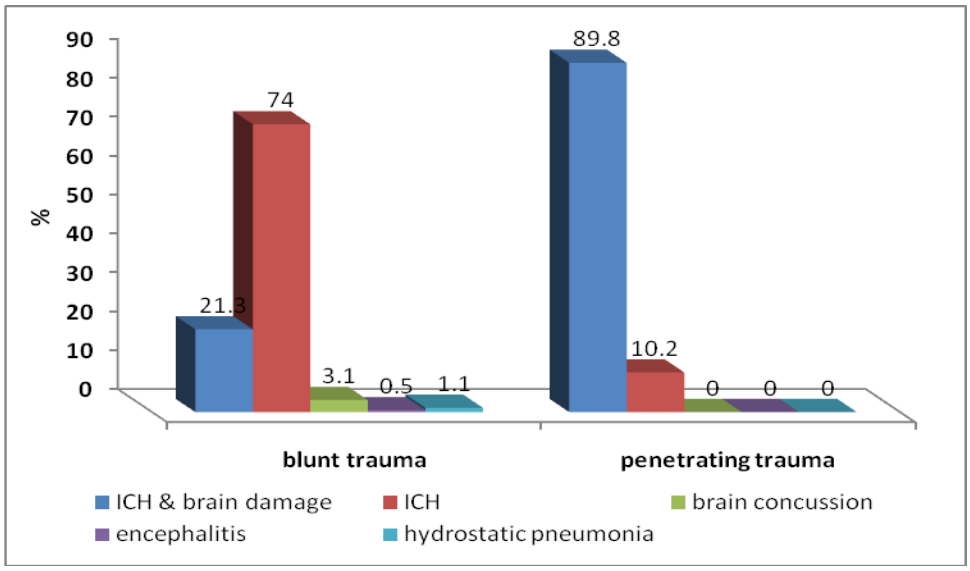

Fig (11a): Distribution of the studied group according to type of trauma and mechanism of death.

This table and figure show that ICH is the commonest mechanism of death in blunt trauma, while combined ICH & Brain damage is more common in penetrating one. These results were found to be statistically significant.

Table (14): Distribution of the studied group according to type of trauma and manner of death.

type of trauma		manner				Total
		homicidal	suicidal	accidental	undtermined	
blunt trauma	Count	250	81	49	1	381
		75.1%	100.0%	90.7%	100.0%	81.2%
penetrating trauma	Count	83	0	5	0	88
		24.9%	.0%	9.3%	.0%	18.8%
Total	Count	333	81	54	1	469
		100.0%	100.0%	100.0%	100.0%	100.0%
Z		10.6	----	10.3	----	
P		<0.001*	----	<0.001*	----	

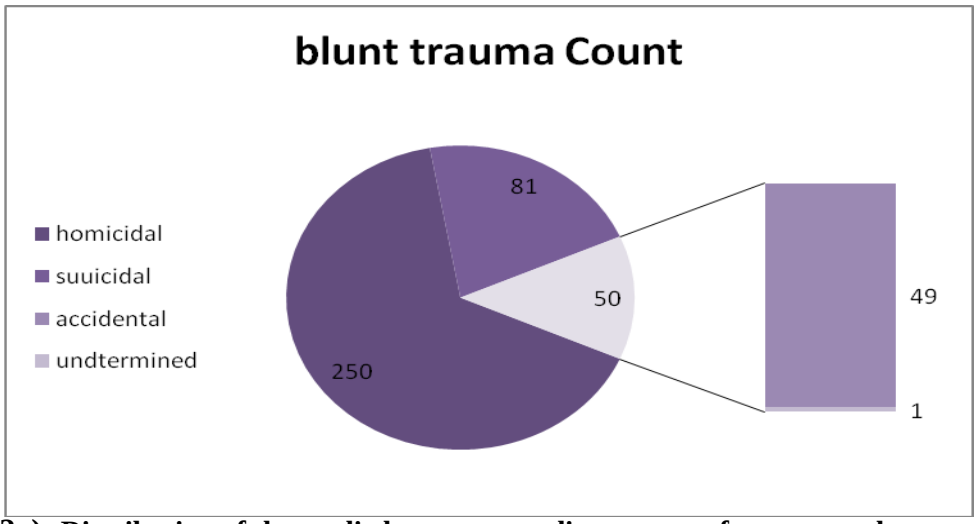

Fig (12a): Distribution of the studied group according to type of trauma and manner of death.

This table and figure show the high prevalence number and percentage of blunt trauma in homicidal and suicidal cases while the higher prevalence number and percentage of penetrating trauma in homicidal cases. The differences were found to be statistically insignificant.

Table (15): Distribution of the studied group according to the causative agents and gender of the victims.

Cause of injury		gender		Total
		Male	female	
Blunt object	No.	170	43	213
	%	79.8%	20.2%	100.0%
Fall from high	No.	88	62	150
	%	58.7%	41.3%	100.0%
Firearm rifled	No.	43	5	48
	%	83.3%	16.7%	100.0%
Firearm non rifled	No.	25	5	30
	%	83.3%	16.7%	100.0%
Motor vehicle accident	No.	14	3	17
	%	82.4%	17.6%	100.0%
Sharp edge & stab in eye	No.	11	0	11
	%	100.0%	.0%	100.0%
Total	No.	351	118	469
	%	74.8%	25.2%	100.0%

X2=34.5 **P<0.001**

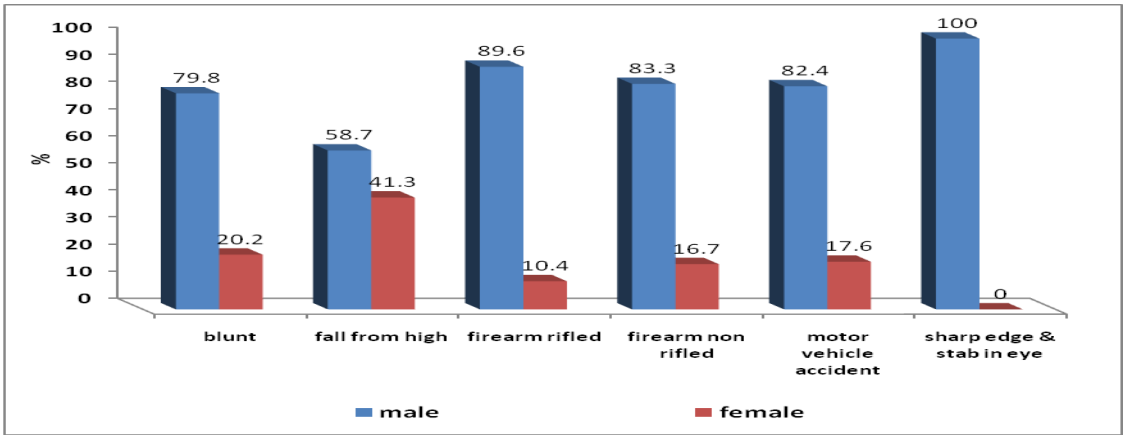

Fig. (13a): Distribution of the studied group according to the the causative agents and gender of the victims.

This table and figure show the high prevalence of blunt object as a causative agent in males than females followed by fall from height. It also shows that rifled firearm weapons are more prevalent in males as a cause of injury than non rifled one. These results are statistically significant.

Table (16): Distribution of the studied group according to the causative agent and place of death of the victims.

Cause of injury		place of death			Total
		at scene	at hospital	During transportation	
Blun object	no.	58	148	7	213
	%	27.2%	69.5%	3.3%	100.0%
Fall from hight	no.	93	52	5	150
	%	62.0%	34.7%	3.3%	100.0%
Firearm rifled	no.	25	22	1	48
	%	52.1%	45.8%	2.1%	100.0%
Firearm non rifled	no.	12	16	2	30
	%	40.0%	53.3%	6.7%	100.0%
Motor vehicle accident	no.	8	8	1	17
	%	47.1%	47.1%	5.9%	100.0%
Sharp edge & stab in eye	no.	3	8	0	11
	%	27.3%	72.7%	.0%	100.0%
Total	no.	199	254	16	469
	%	42.4%	54.2%	3.4%	100.0%

Adjusted $\mathbf{X^2}$ =**50.02** **P< 0.001**

This table clearly illustrates that the high prevalence number and percentage of cases due to trauma with blunt object died at hospital while that due to fall from height died at scene. The statistical results were found to be highly significant.

(17): Distribution of the studied group according to the causative agent and manner of death.

Cause of injury		Manner				Total
		Homicidal	Suuicidal	Accidental	undtermined	
Blunt object	no.	208	2	3	0	213
	%	97.7%	.9%	1.4%	.0%	100.0%
Fall from high	no.	36	78	35	1	150
	%	24.0%	52.0%	23.3%	.7%	100.0%
Firearm rifled	no.	46	0	2	0	48
	%	95.8%	.0%	4.2%	.0%	100.0%
Firearm non rifled	no.	28	0	2	0	30
	%	93.3%	.0%	6.7%	.0%	100.0%
Motor vehicle accident	no.	4	1	12	0	17
	%	23.5%	5.9%	70.6%	.0%	100.0%
Sharp edge & stab in eye	no.	11	0	0	0	11
	%	100.0%	.0%	.0%	.0%	100.0%
Total	no.	333	81	54	1	469
	%	71.0%	17.3%	11.5%	.2%	100.0%

Adj usted $\mathbf{X^2}$ =**330.6** **P< 0.001**

This table show that the high prevalence number and percentage of blunt objects and rifled firearm weapon as a causative agents in homicidal cases. It also shows that the fall from height is more prevalent in suicidal and accidental manner of deaths as compared to other causes of traumatic head injuries. The differences were found to be highly significant.

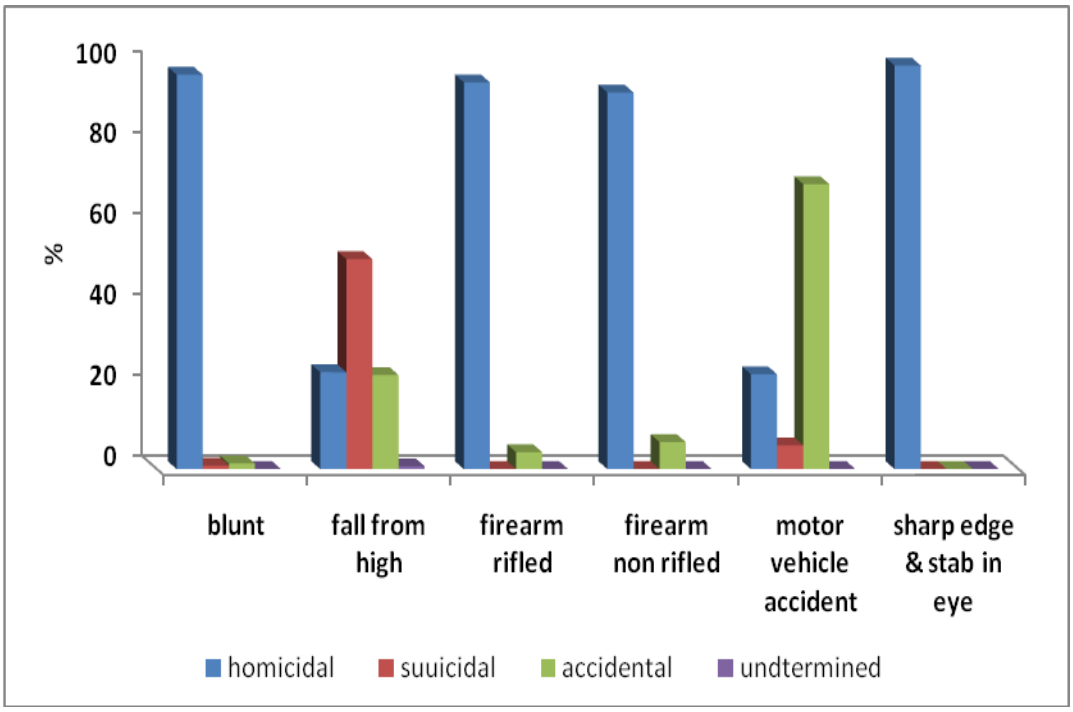

Fig. (14a): Distribution of the studied group according to the causative agent and manner of death.

This figure show that the high prevalence number and percentage of blunt objects and rifled firearm weapon as a causative agents in homicidal cases. It also shows that the fall from height is more prevalent in suicidal and accidental manner of deaths as compared to other causes of traumatic head injuries. The differences were found to be highly significant.

Table (18): Distribution of the studied group according to manner of death and age of the victims.

Age/Years		manner				Total
		Homicidal	suicidal	accidental	undtermined	
<10	No.	12	3	2	0	17
	%	70.6%	3.7%	11.8%	.0%	100.0%
10-	No.	44	9	5	0	58
	%	75.9%	15.5%	8.6%	.0%	100.0%
20-	No.	108	27	16	0	151
	%	71.5%	17.9%	10.6%	.0%	100.0%
30-	No.	56	12	9	0	77
	%	72.7%	15.6%	11.7%	.0%	100.0%
40-	No.	47	13	13	0	73
	%	64.4%	17.8%	17.8%	.0%	100.0%
50-	No.	37	8	4	0	49
	%	75.5%	16.3%	8.2%	.0%	100.0%
60-	No.	19	5	2	1	27
	%	70.4%	18.5%	7.4%	3.7%	100.0%
70-	No.	9	4	3	0	16
	%	56.3%	25.0%	18.8%	.0%	100.0%
>80	No.	1	0	0	0	1
	%	100.0%	.0%	.0%	.0%	100.0%
Total	No.	333	81	54	1	469
	%	71.0%	17.3%	11.5%	.2%	100.0%

Adjusted $\mathbf{X^2}$ **=23.6** **P>0.05**

This table shows the high prevalence number and percentage of homicidal deaths among the middle ages of the victims (20-40) years old.

Table (19):- Distribution of the studied group according to manner of death and gender of the victims.

Manner		gender		Total
		male	female	
Homicidal	No.	266	67	333
	%	79.9%	20.1%	100.0%
Suicidal	No.	40	41	81
	%	49.4%	50.6%	100.0%
Accidental	No.	44	10	54
	%	81.5%	18.5%	100.0%
Undtermined	No.	1	0	1
	%	100.0%	.0%	100.0%
Total	No.	351	118	469
	%	74.8%	25.2%	100.0%

Adj usted X^2 = 30.7 **P<0.001**

This table shows the high prevalence number and percentage of homicidal deaths among the male victims more than females. This difference was found to be statistically significant

Table (20): Distribution of the studied group according to manner of death and place of death of the victims.

Place of Death		Manner of Death				Total
		homicidal	**suicidal**	**accidental**	**undtermined**	
at scene	No.	118	51	30	0	199
	%	59.3%	25.6%	15.1%	.0%	100.0%
at hospital	No.	202	28	23	1	254
	%	79.5%	11.0%	9.1%	.4%	100.0%
during transportation	No.	13	2	1	0	16
	%	81.3%	12.5%	6.3%	.0%	100.0%
Total	No.	333	81	54	1	469
	%	71.0%	17.3%	11.5%	.2%	100.0%

Adj usted $\mathbf{X^2}$ =**25.4** **P< 0.001**

This table shows the high prevalence number and percentage of homicidal deaths occurred at hospital while those of suicidal and accidental deaths occurred at scene of the crime. These differences were found to be highly significant.

Table (21): Distribution of the studied group according to the site of the crime

Site of the crime	No.	%
Outdoor	459	97.9
Indoor	10	2.1
Total	469	100.0

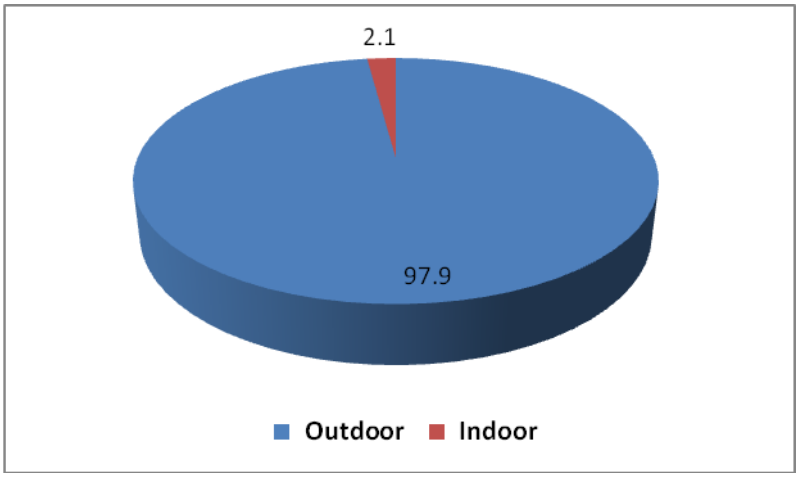

Fig (15a): Distribution of the studied group according to the site of the crime

This table and figure show high prevalence number of deaths that occurs outdoors compared to the indoors.

Table (22): Number and percentage of each cause of head injury in relation to the years of the study.

Year		Cause of head injury						Total
		Blunt object	Fall from high	Firearm rifled	Firearm non rifled	Motor vehicle accident	Sharp edge & stab in eye	
2005	no.	55	44	12	2	4	3	120
	%	45.8%	36.7%	10.0%	1.7%	3.3%	2.5%	100.0%
2006	no.	34	29	11	4	7	3	88
	%	38.6%	33.0%	12.5%	4.5%	8.0%	3.4%	100.0%
2007	no.	27	13	8	3	0	1	52
	%	51.9%	25.0%	15.4%	5.8%	.0%	1.9%	100.0%
2008	no.	41	35	8	16	2	2	104
	%	39.4%	33.7%	7.7%	15.4%	1.9%	1.9%	100.0%
2009	no.	56	29	9	5	4	2	105
	%	53.3%	27.6%	8.6%	4.8%	3.8%	1.9%	100.0%
Total	no.	213	150	48	30	17	11	469
	%	45.4%	32.0%	10.2%	6.4%	3.6%	2.3%	100.0%

Adjusted $\mathbf{X^2}$ =**34.9** **P< 0.05**

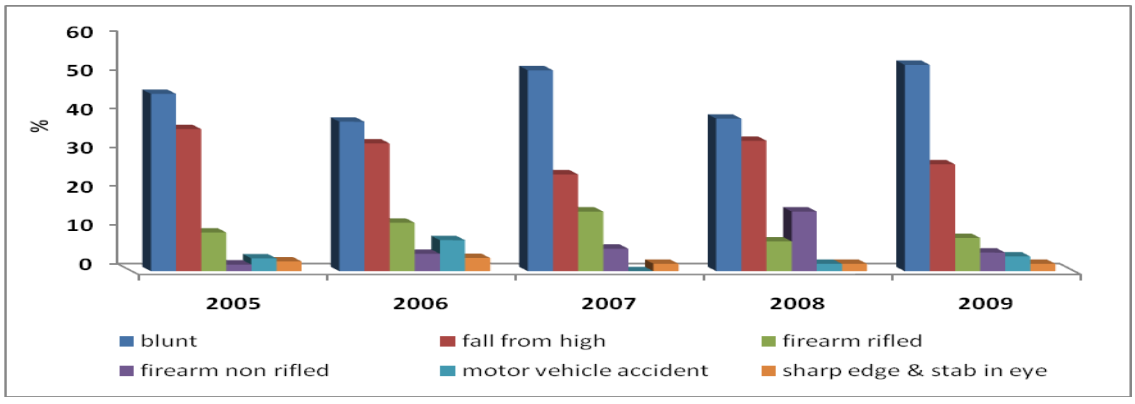

Fig. (16a): Number and percentage of each cause of head injury in relation to the years of the study.