RESULTS

During the period of the study, all cases of acute household products intoxication (185 patients) who were admitted to Benha Poisoning Control Unit (BPCU) were included in the present study.

These patients were classified into four main groups, according to the type of the household product to which they were exposed:

1- Pesticides group (89 cases).

2- Hydrocarbons group (38 cases).

3- Cleaning and disinfectant products group (51 cases).

4- Miscellaneous group (7 cases).

Each main group was classified into subgroups according to the domestic use, as follows:

1. Pesticides group:
   - Insecticides (organophosphorous compounds, organochlorines and pyrethroids).
   - Rodenticides (carbamates, zinc phosphide, anticoagulants).
   - Others (herbicides, cockroaches control = boric acid).

2. Hydrocarbons group:
   - Kerosene.
   - Other hydrocarbons (benzene and thinner).

3. Cleaning and disinfectant products group:
   - Bleaches.
   - Acids and alkali.

- Carbolic acid (phenol).
- Mixtures (flash = mixture of clorox and sulfuric acid).

4. Miscellaneous group:
    - Cosmetics and personal products.
    - Others *(car oil and formalin).*

The results of the present study fall into **5 categories** that include: epidemiological results, clinical results, biochemical results, total leukocytic count study and radiological (plain chest X-ray) findings.

1- EPIDEMIOLOGICAL RESULTS:

All the household products intoxicated cases were subjected to the following epidemiological studies, **(tables, 9 – 35; fig., 13 - 22).**

A) INCIDENCE:

The household products intoxicated cases were 19.5% (185 out 950 cases) of the total intoxicated cases that were admitted during the period of the study, **(table, 9; fig., 12)**.

The pesticides group was the most common (48.0%) and was distributed as follows: rodenticides 53%, the insecticides 41% and the other pesticides 6%. Followed by cleaning and disinfectant products group (28%) which was distributed as follows: bleaches 54.9%, sulfuric acid and flash, each of which 15.7% and carbolic acid 13.7%. Then the hydrocarbons group (20.0%) and was distributed as follows: kerosene

87% and other hydrocarbons 13%. And lastly the miscellaneous group (4%) which was distributed as follows: cosmetics and personal care products 71% and others 29%, **(tables, 10 – 14; fig., 14 - 22).**

Among the household pesticides, organophosphorous compounds and carbamates were the most common, (each of which 33.6%) followed by the zinc phosphide (15.7%), organochlorines (6.7%), others (5.6%), anticoagulants (3.7%) and the pyrethroids (1.1%). Meanwhile among household hydrocarbons, kerosene was the most common (87%) followed by benzene (8%) and thinner (5%). On the other hand among household cleaning and disinfectant products, clorox was the most common (41.0%) followed by sulfuric acid and flash, each of which (16.0%) and potash and phenol (each of which 14.0%). Lastly among household miscellaneous products, shampoo was the most common (42.8%) followed by soap, lipstick, formalin and car oil (each of which 14.3%), **(tables, 11 – 14; fig., 15 -22).**

B) SEX:

Among the whole household products intoxicated cases there was almost equal distribution of the male and female patients, but the males were higher among the hydrocarbons group (68.4%) and the miscellaneous group (85.7%). Meanwhile the females were higher among the pesticides group (58.4%) and the cleaning and disinfectant products group (52.9%), **(tables, 15 & 16)**.

C) AGE:

The age group under 6 years showed higher incidence among the whole household products intoxicated patients, while the age group from 18 to 50 years showed higher incidence among the household pesticides intoxicated patients, **(tables, 15 & 16)**.

D) CONTAINER OF PRODUCT & MANNER OF POISONING:

There was high percentage of original containers of the household products among the whole studied cases (54%) and among the different groups as follows: pesticides group (58.4%), the cleaning and disinfectants group (66.7%) and the miscellaneous group (85.7%) while in the hydrocarbons group the non-original container was the most common type (78.9%), **(tables, 17 & 18)**.

There was high percentage of the accidental manner of poisoning (70%) among the whole studied cases except in the pesticides group where suicidal manner was the most common (53.9%). On the other hand no homicidal cases were recorded among all the studied cases, **(tables, 17 & 18)**.

The accidental manner of exposure to household products was common among males of the age group under 6 years and among the non-original containers of the household products. Where as the suicidal manner of exposure was the commonest among females of the age group from 18 to 50 years and among the original containers and that mixed with food, **(tables, 19 - 21)**.

E) RESIDENCE & PLACE AT HOME:

There was higher percentage of the household products intoxicated cases from the rural areas (67%) and the kitchen as a place where the household products were stored (44.3%) among all the household products groups except miscellaneous group where the urban residence was the most prevalent (71.4%) and the bathroom was the predominant place (71.4%), **(tables, 22 & 23)**.

F) ROUTE OF EXPOSURE:

There was higher percentage of the oral route of exposure to household products as a whole (90%) and also among the different groups (pesticides= 91%, hydrocarbons= 97.4%, cleaning products= 82.4% and miscellaneous group= 100%), followed by the inhalation route (6%) and lastly the dermal route (4%), **(tables, 24 & 25)**.

G) DELAY:

About 62% of the whole household intoxicated cases were admitted to the hospital one hour of exposure, followed by (1-6 hours) delay (32.9%), then (>6 hours) delay (4.5%) and unknown (0.5%). On the other hand in the household pesticides group 48% of cases showed (1-6 hours) delay and 47% showed a delay (< 1 hour), **(tables, 24 & 25)**.

There was a significant positive correlation ($p < 0.05$) between the time of delay and the severity of the household organophosphorous compounds and hydrocarbons poisoning. But this positive correlation was insignificant ($p > 0.05$) in the household carbamates intoxicated cases, **(table, 26)**.

H) ADMISSION PLACE:

Most of the household products intoxicated cases were admitted in the inpatient ward (50.2%) followed by those observed in emergency room without admission (39.1%), then intensive care unit (ICU) admitted patients (9.1% = hydrocarbons "9 cases", pesticides "7 cases" and cleaning products "only 1 case") and only three patients (1.6% = pesticides group "2 cases" and cleaning products "only 1 case") were referred to Ain shams PCC, due to unavailability of either the specific antidotes or the ICU admission places. Meanwhile among both the cleaning products and the miscellaneous groups, those who were observed in the emergency room without admission predominated 56.9% and 100.0% respectively, **(tables, 27 & 28)**.

I) OUTCOME OF POISONING:

The majority of the household products intoxicated cases had full recovery outcomes (97.4%) followed by those showed improvement after referral (1.6%) and only two cases of pesticides (organophosphorous compounds) had died (1%), mainly due to complications of post-anoxic encephalopathy, **(tables, 27 & 28)**.

J) PAST MEDICAL HISTORY:

The majority of the household products intoxicated cases had no past medical history of diseases (91.4%) followed by those with past medical history of diseases like asthma (2.7%), psychiatric diseases (2.7%), diabetes mellitus (1.7%), then hypertension, epilepsy and peptic ulcer each of which was 0.5%, **(tables, 29 & 30)**.

K) PREHOSPITAL (HOME) TRATEMENT:

About 62.2% of the household products intoxicated received no home treatment measures and were distributed as follows: (66.3% of pesticides group, 68.4% of hydrocarbons group 51% of cleaning and disinfectant products and 57.1% of the miscellaneous group), followed by those treated with salty water (21.7) and distributed as follows: 31.5% of pesticides group, 15.8% of hydrocarbons group 11.8% of cleaning and disinfectant products group and none among the miscellaneous group, **(tables, 29 & 30)**.

L) EPIDIMIOLOGICAL CHARACTERS OF CARBAMATE (CM) & ORGANOPHOSPHATE (OP) INTOXICATED CASES:

Among the household CM intoxicated cases, the following epidemiological features predominated: females (63.3%), suicidal manner (76.7%) and the age group (18-50) years (70%). On the other hand the following epidemiological features predominated among the household OP intoxicated cases, males (60%), accidental manner (66.7%) and the age group (< 6) years (56.7%), **(tables, 31 & 32)**.

Meanwhile the following epidemiological features were almost similar and predominated in both the household OP and CM intoxicated cases: rural residence (86.7%, 70% respectively), kitchen as a place of household product storage (40%, 56.7% respectively), the original containers (80%, 76.6% respectively) and oral route of exposure (80%, 100% respectively), **(tables, 31 & 32)**.

M) EPIDIMIOLOGICAL CHARACTERS OF THE HYDROCARBONS INTOXICATED CASES:

Among the household hydrocarbons intoxicated cases, the following epidemiological features predominated: males {68.4%}, accidental manner of poisoning {92%}, age group under 6 years {76.3%}, rural residence {74%}, kitchen as a place of household product storage {42%}, the non-original containers of the household products {79%} and oral route of exposure {97%}, **(tables, 33 & 34)**.

There was a seasonal variation observed only among cases of household hydrocarbons poisoning with high percentage of these cases occurred in the summer (50%), followed by the spring (29%), then autumn (13.1%) and lastly in the winter (7.9%), **(table, 35)**.

2- CLINICAL RESULTS:

Organophosphates (OP) and carbamates (CM)

- The household OP and CM intoxicated cases were clinically studied according to the following parameters: clinical presentation, clinical course (severity), treatment measures, admission places at hospital and outcome of poisoning, **(tables, 32 & 36- 39).**

A) CLINICAL PRESENTATION:

The clinical presentation of the household OP and CM intoxicated cases, showed insignificant differences ($p > 0.05$) in the following manifestations: abdominal symptoms {vomiting and abdominal pain

(73.4%) in both OP & CM, diarrhea (56.7% in OP and 40% in CM)}, meiosis OP = 63%, CM = 60%, increased body secretions OP = 70%, CM = 60%, fasiculations OP = 37%, CM = 23% and pulmonary edema OP =37%, CM = 23%. While there was significant difference ($p < 0.05$) in muscle weakness (OP = 53%, CM = 10% only). Fourteen patients (23.3%) were asymptomatic (6 among OP and 8 among CM), **(tables, 36 & 37)**.

B) SEVERITY OF POISONING:

There was high percentage of the severe cases with poisoning severity score (PSS = 3) among OP intoxicated cases (33.3%), followed by 6.7% for the fatal cases (PSS = 4), 13% for moderate cases with (PSS=2), 27% for mild cases with (PSS=1) and 20% of cases were asymptomatic. Meanwhile in CM intoxicated cases the asymptomatic and mild cases (PSS=1) were the most common (26.7% for each), 23% for severe cases (PSS=3) and there was no fatality between cases. There was insignificant difference ($p > 0.05$) between the PSS levels in OP and CM intoxicated cases, **(table, 37)**.

Significant negative correlation ($p < 0.05$) between the Glasgow coma scale (GCS) scores and the degree of severity of poisoning among both the household OP and CM intoxicated cases was observed, **(table, 38)**.

C) LINES OF TREATMENT:

There were differences in the treatment lines between OP and CM intoxicated cases, while in OP the main decontaminating methods were

gastric lavage and activated charcoal followed by soap and water (for scalp decontamination of hair oil containing OP insecticides); in CM it was syrup of Ipecac and activated charcoal, i.e. showed significant differences ($p < 0.05$) . Meanwhile in both OP and CM, atropine therapy showed similarity (80% and 77% respectively), i.e. showed insignificant differences ($p > 0.05$). While oximes therapy showed significant difference ($p < 0.05$) between OP and CM, as in OP oximes therapy was used in 54% of cases; it was used only in 10% of CM cases (*these cases of household carbamates intoxications were presented with vague history or with mixed OP ingestions*), **(table, 39)**.

D) ADMISSION PLACE & OUTCOME OF POISONING:

The distribution of admission places among OP and CM intoxicated cases was as follows: in OP (inpatient = 53.3%, ICU = 20%, observation = 20% and referral = 6.7%), in CM (inpatient = 70%, ICU = 3.3%, observation = 27% and no cases of referral). While the distribution regarding the outcome was as follows: in OP intoxicated cases (Improvement = 93.3% and two cases died 6.7%, due to complications of post-anoxic encephalopathy), in CM intoxicated cases (all cases showed improvement 100%, without any fatality), but these differences were insignificant ($p > 0.05$), **(table, 32)**.

Hydrocarbons

The household hydrocarbons intoxicated cases were clinically studied according to the following parameters: clinical presentation, clinical course (severity), treatment measures, admission places at hospital and outcome of poisoning, **(tables, 34 & 40-43).**

A) CLINICAL PRESENTATION:

Among the household hydrocarbons intoxicated cases, there were 21% asymptomatic patients and 79% were symptomatic, the clinical manifestations of the symptomatic patients were distributed as follows: cough (76.6%), characteristic odor (93.6%), vomiting (46.6%), abdominal distention (16.6%), Tachypnea (60%), rhonchi and cripitations (53.4%), respiratory distress (43.4%), and fever (23.3%), **(table, 40)**.

There was a highly significant positive correlation ($p < 0.001$) between vomiting and both "the severity of the clinical presentation and the presence of chemical pneumonitis in plain chest x-ray" among the hydrocarbons intoxicated cases, **(table, 42)**.

B) SEVERITY OF POISONING:

There was higher percentage of the mild cases with poisoning severity score (PSS = 1) among hydrocarbons intoxicated cases (31.6%), followed by 23.7% for both the moderate (PSS = 2) and severe cases (PSS = 3), 21% for asymptomatic cases with (PSS=0). Meanwhile no fatal cases (PSS=4) was recorded, **(table, 41)**.

C) LINES OF TREATMENT:

In the present study, all household hydrocarbons intoxicated cases were treated with humefied oxygen after skin and cloth decontamination (bathing), antibiotics were given to about 71% of cases and steroids to about 29% of cases, **(table, 43)**.

D) ADMISSION PLACE & OUTCOME OF POISONING:

About 47.3% of the household hydrocarbons intoxicated cases were admitted in inpatient wards, 29% were put under observation in the emergency room, 23.7% were admitted to the intensive care unit and none of cases was referred. All cases of household hydrocarbons poisoning showed full improvement with no fatalities, **(table, 34)**.

3- BIOCHEMICAL RESULTS:

(A): The household OP and CM intoxicated cases were subjected to the following biochemical studies, **(tables, 44 - 48; fig., 23 & 24):**

1. Blood chemistry:
   - Serum random glucose level.
   - Serum sodium level.
   - Serum potassium level.
2. Liver enzymes:
   - Alanine aminotransferase (ALT).
   - Aspartate aminotranferase (AST).
3. Arterial blood gases (pH).
4. Plasma cholinesterase (BuChE) level.

Hyperglycemia was observed in about 27% of OP cases and 18% of CM cases, hypokalemia was present in 20% of both OP and CM cases, acidosis (either respiratory or metabolic) was present in about 27% of OP cases and 13% of CM cases while increased ALT was found in about 13% of OP and 10% of CM cases and increased AST present in about 27% of OP and 13% of CM cases, but these differences were insignificant ($p > 0.05$), **(table, 44)**.

There was a significant positive correlation ($p < 0.05$) between each of {increased serum glucose level (hyperglycemia) and elevated serum liver enzymes} and the severity of poisoning in both household OP and CM intoxicated cases. While there was a significant negative correlation ($p < 0.05$) between the serum potassium level and the severity of poisoning in both household OP and CM intoxicated cases, **(table, 47)**.

There was a significant positive correlation ($p < 0.05$) between acidosis (either respiratory or metabolic) and the severity of poisoning in both household OP and CM intoxicated cases, **(table, 47)**.

Among OP intoxicated cases the pattern of reduction in Butyrylcholinesterase (BuChE) levels was as follows: 20% of cases had "normal level", 23% of cases were "50%-100% of the laboratory minimum normal value", 17% of cases were "20%-50%", 23% of cases were "10%-20%" and 17% of cases were "< 10% of the laboratory minimum normal value". Meanwhile the pattern among the household CM intoxicated cases was as follows: 20% of cases had "normal level",

10% of cases were "50%-100% of the laboratory minimum normal value", 60% (most of cases) were "20%-50%", 7% of cases were "10%-20%" and only 3% of cases were "< 10% of the laboratory minimum normal value ", and these differences were significant (p <0.05), **(table, 45)**.

There was a highly significant negative correlation (p <0.001) between the mean Butyrylcholinesterase (BuChE) levels and the severity of poisoning in both household OP and CM intoxicated cases, **(tables, 46 & 47)**.

The serial BuChE levels in OP and CM intoxicated cases followed different patterns; while in OP intoxicated cases the serial BuChE almost not changed (very slow rise, not changed or even decreased) i.e. showed insignificant change (p >0.05). On the other side in CM intoxicated cases they showed rapid rise and improvement, i.e. showed significant change (p <0.05), which was of great value in differentiation between household OP and CM intoxications, **(table, 48; fig., 23 & 24).**

(B) The household products intoxicated cases that were treated with salty water as a prehospital (home) management, serum sodium level was estimated, **(tables, 49 & 50)**.

Among the cases that were treated with salty water as a prehospital (home) treatment for induction of vomiting, the incidence of

hypernatremia was 36% in pesticides, 50% in hydrocarbons, 33% in cleaning and disinfectant products, **(table, 49)**.

Among these cases there was a highly significant negative correlation ($p < 0.001$) between increased serum sodium level (hypernatremia) and the Glasgow coma scale (GCS) score, **(table, 50)**.

4- TOTAL LEUKOCYTIC COUNT STUDY:

Leukocytosis was observed in about 45% of the household hydrocarbons intoxicated cases and there was a highly significant positive correlation ($p < 0.001$) between the increased total leukocytic count (leukocytosis) and both "the severity of poisoning and the presence of chemical pneumonitis in plain chest x-ray" among the household hydrocarbons intoxicated cases, **(tables 51 & 52)**.

5- RADIOLOGICAL FINDINGS:

The household hydrocarbons intoxicated cases were subjected to radiological (plain chest x-ray) study, **(tables, 53 – 55; fig., 25 - 32)**.

About (74%) of the hydrocarbons intoxicated cases had positive radiological findings (pulmonary pathology), and about (26%) were radiologically free. Among those with positive x-ray findings, increased broncho-vascular markings (either alone or in association with pneumonitis) was the commonest (74%) followed by radiological evidence of pneumonitis (either basal or diffuse) which was (42%), **(table, 53; fig., 25 - 32)**.

The most common affected side was the right side (73%) followed by the bilateral pattern (56%), **(table, 54)**.

The radiological findings in acute hydrocarbons poisoning cases were not always related to the clinical severity, as there were positive radiological findings among the asymptomatic cases (50% had increased broncho-vascular markings), meanwhile among the symptomatic cases there were negative radiology (free chest x-ray) as in PSS= 1 and PSS= 2 (45%, 10% respectively), **(table, 55)**.

Table (9): **Distribution of the whole acute intoxicated cases which were admitted to the BPCU during the period of the study, *according to the type of toxic agent*:**

Group	No.	%
Pharmaceuticals	435	45.8
Household products	185	19.5
Food poisoning	120	12.6
Unknown	65	6.8
Others	145	15.3
Total	**950**	**100.0**

BPCU = Benha Poisoning Control Unit
Others = (gaseous poisons, animal bites and stings, toxic plants and drugs of abuse)

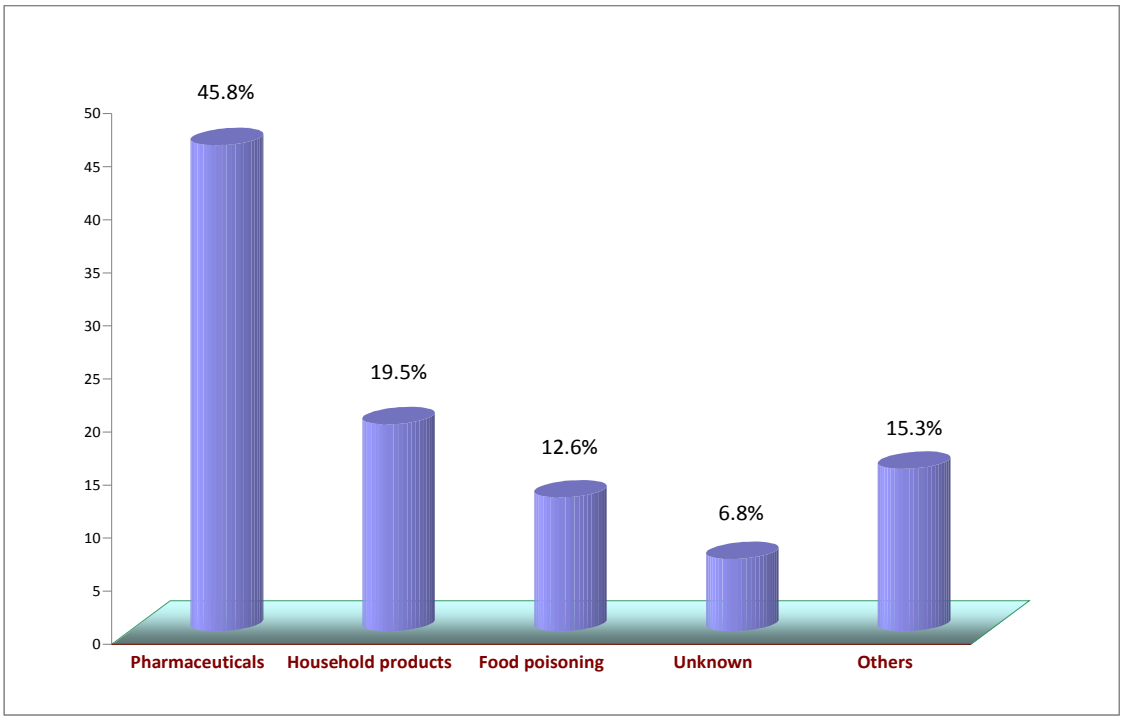


Figure (13): **Distribution of the whole acute intoxicated cases which were admitted to the BPCU during the period of the study, *according to the type of toxic agent.***

Table (10): **Distribution of the studied cases (acute household products intoxicated cases)** ***according to the type of the household product (four main groups):***

Group	No.	%
Pesticides group	89	48.0
Cleaning and disinfectant products group	51	28.0
Hydrocarbons group	38	20.0
Miscellaneous group	7	4.0
Total	**185**	**100.0**

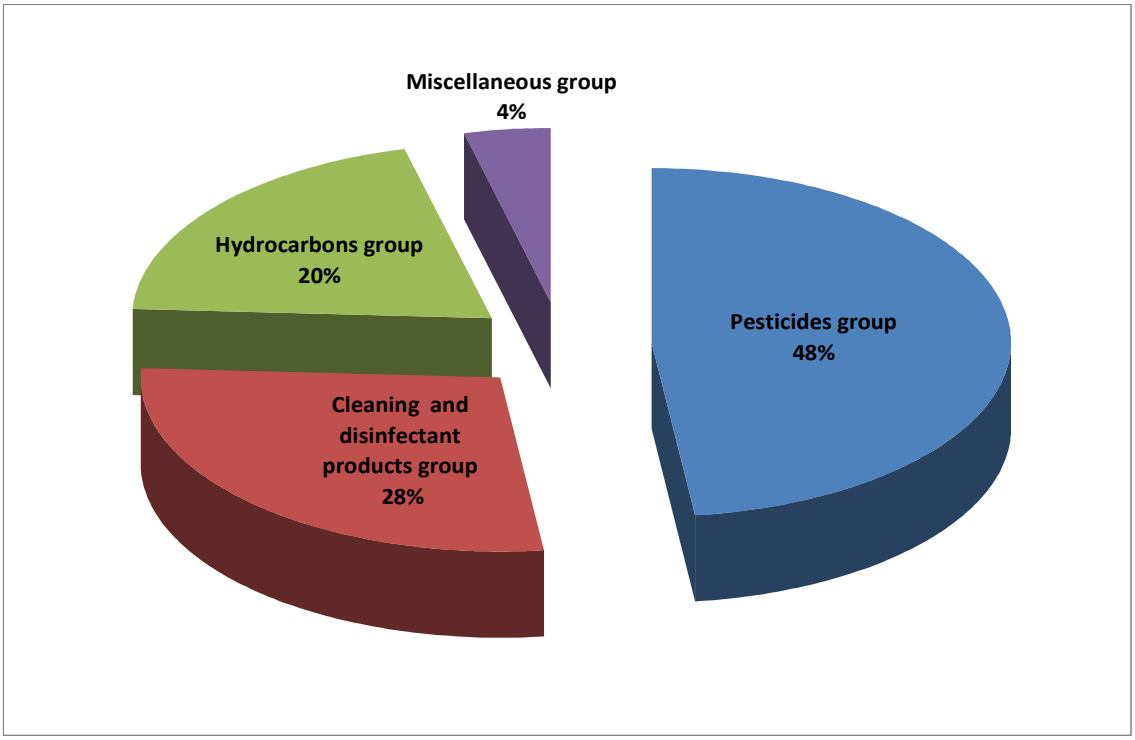


Figure (14): **Distribution of the studied cases (acute household products intoxicated cases),** ***according to the type of the household product (four main groups).***

Table (11): **Distribution of the different subgroups of the household pesticides *according to the type of the pesticide:***

Subgroup	Particular type	No.	%	Total	
				No.	%
Insecticides	Organophosphates	30	33.6	37	41.0
	Organochlorines	6	6.7		
	Pyrethroids	1	1.1		
Rodenticides	Carbamates	30	33.6	47	53.0
	Zinc phosphide	14	15.7		
	Anticoagulants	3	3.7		
Others	Herbicides & boric acid	5	5.6	5	6.0
Total		89	100.0	89	100.0

Figure (15)

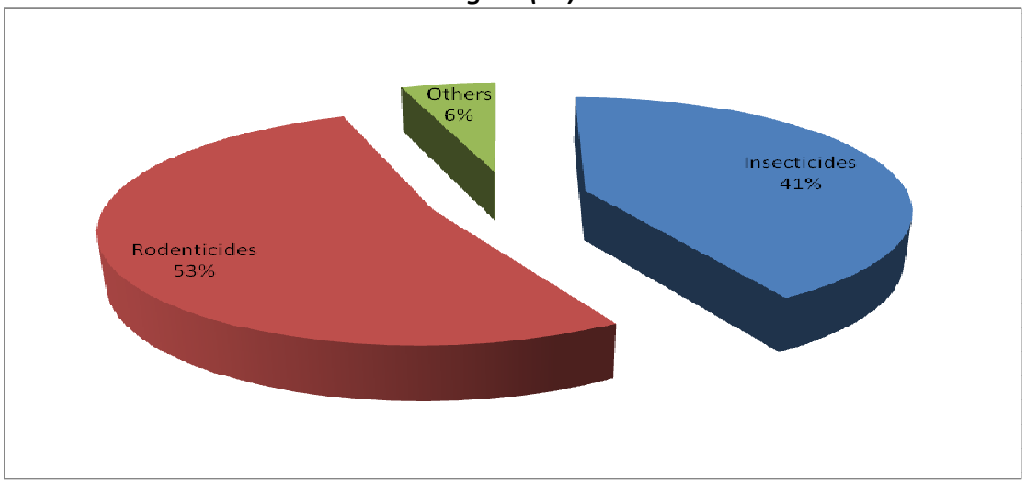
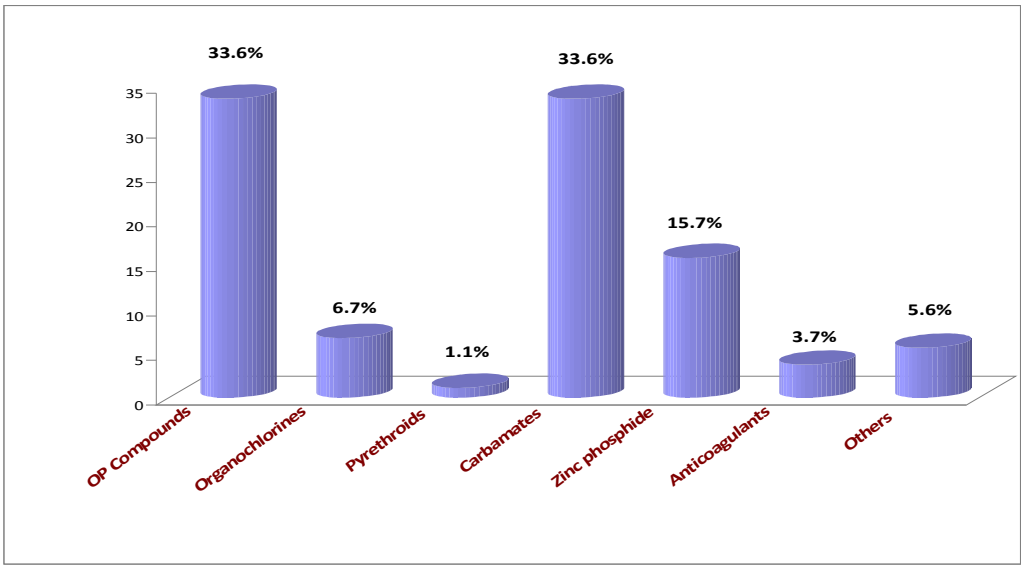


Figure (16)



Figures (15) & (16): **Distribution of the different subgroups of the household pesticides group, *according to the type of the pesticide.***

Table (12): **Distribution of the different subgroups of the household cleaning & disinfectant products group, *according to the type of the cleaning product:***

Subgroup	Particular type	No.	%	Total	
				No.	%
Bleaches	Clorox (Na hypochlorite)	21	41.0	28	54.9
	Potash (K hydroxide)	7	14.0		
Acids and alkali	Sulfuric acid	8	16.0	8	15.7
Carbolic aid	Phenol	7	14.0	7	13.7
Mixtures	Flash (mixture of sulfuric acid & clorox)	8	16.0	8	15.7
Total		51	100.0	51	100.0

Figure (17)

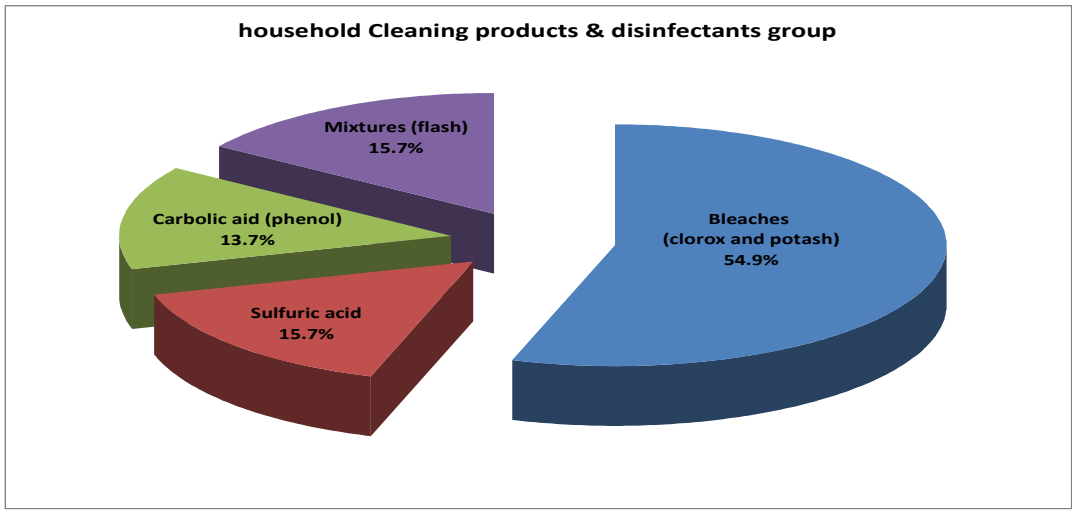
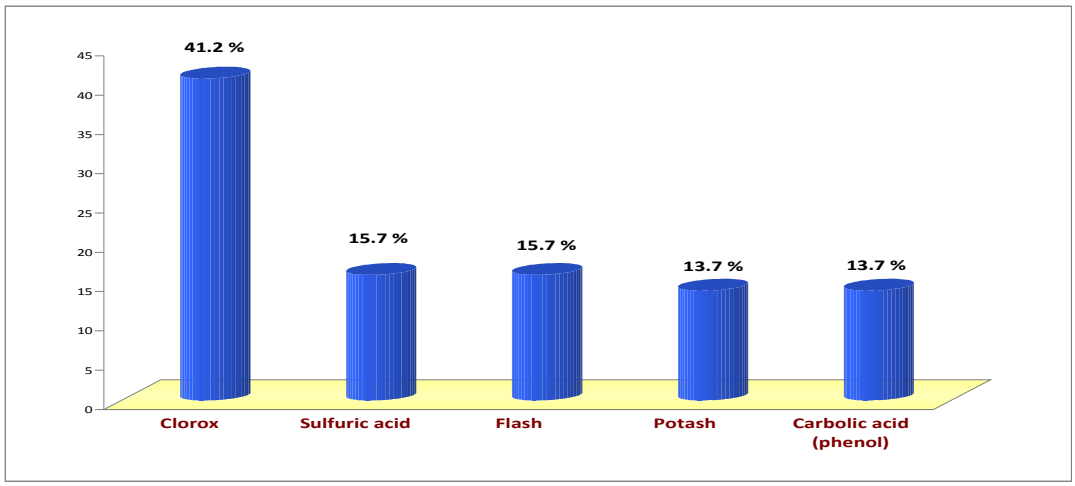


Figure (18)



Figures (17) & (18): **Distribution of the different subgroups of the household cleaning & disinfectant products group, *according to the type of the cleaning product.***

Table (13): **Distribution of the different subgroups of the household hydrocarbons group, *according to the type of the hydrocarbon:***

Subgroup	Particular type	No.	%	Total	
				No.	%
Kerosene	**Kerosene**	33	87.0	33	**87.0**
Other hydrocarbons	**Benzene**	3	8.0	5	**13.0**
	Thinner	2	5.0		
Total		**38**	**100.0**	**38**	**100.0**

Figure (19)

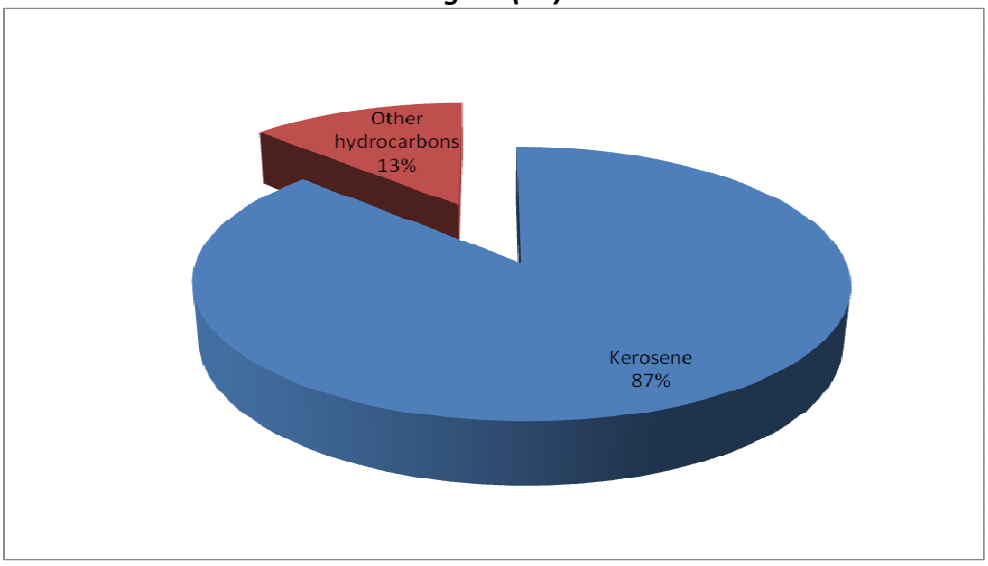
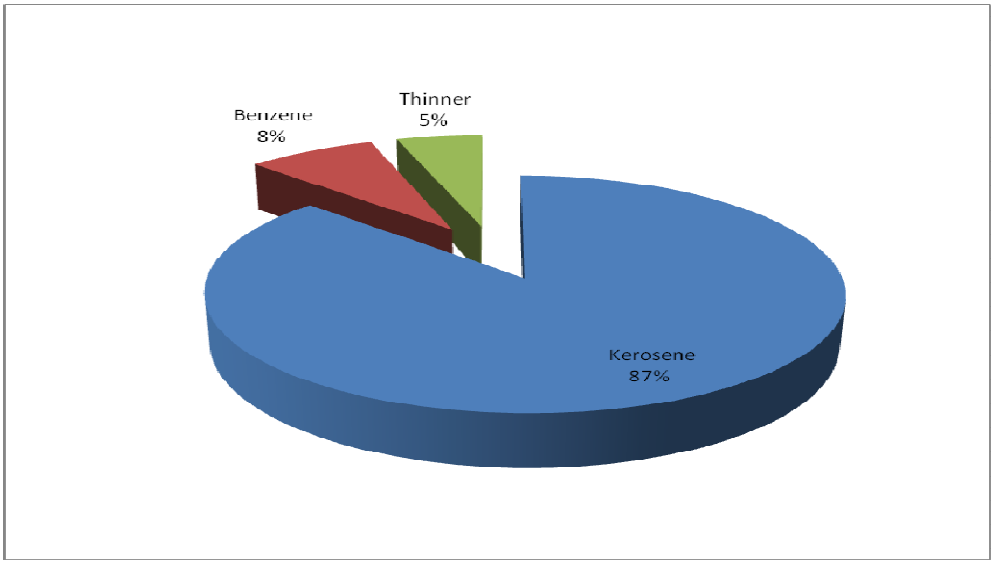


Figure (20)



Figures (19) & (20): **Distribution of the different subgroups of the household hydrocarbons group, *according to the type of the hydrocarbon.***

Table (14): **Distribution of the different subgroups of the household miscellaneous group, *according to the type of the household product:***

Subgroup	Particular type	No.	%	Total	
				No.	%
Cosmetics and personal products	Shampoo	3	42.8	5	71.0
	Soap	1	14.3		
	Lipstick	1	14.3		
Others	Formalin	1	14.3	2	29.0
	Car oil	1	14.3		
Total		7	100.0	7	100.0

Figure (21)

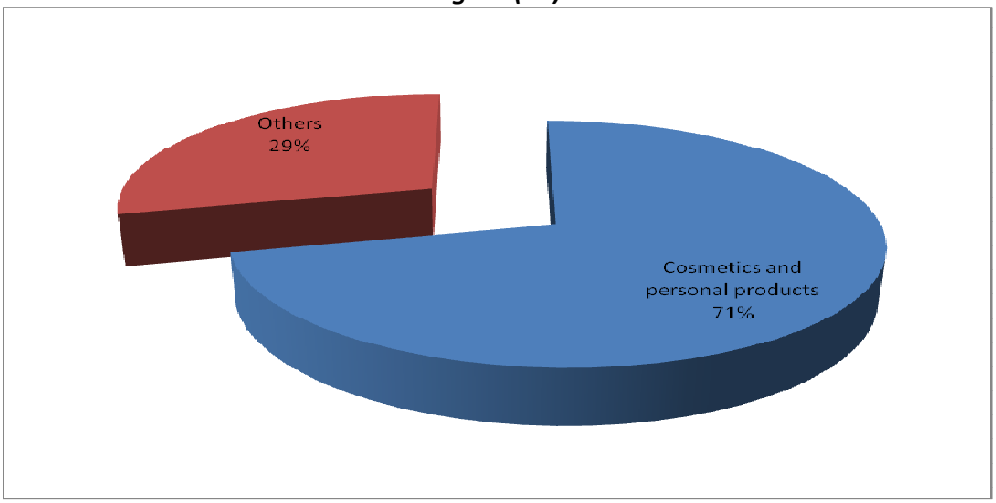
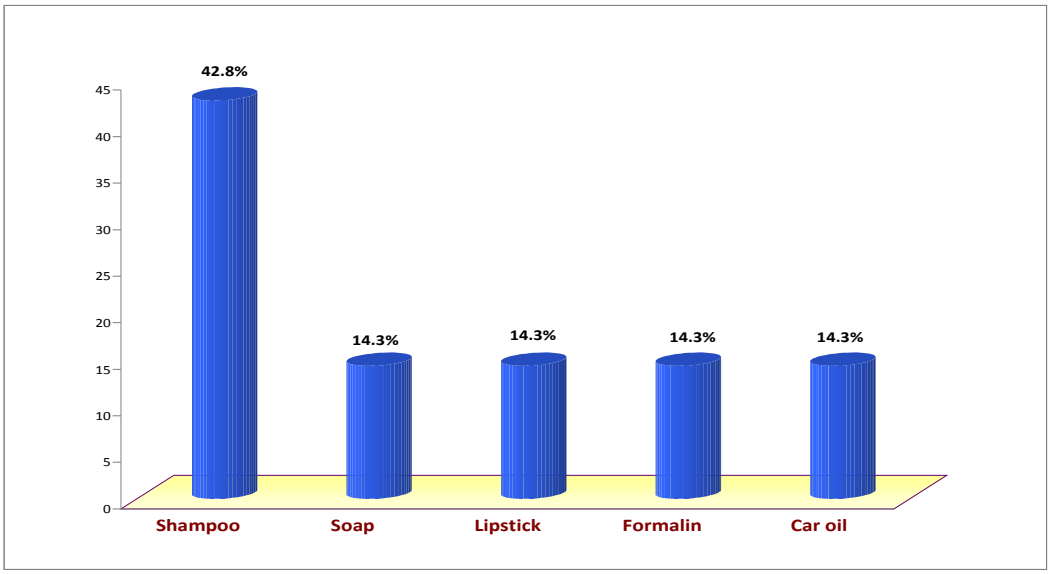


Figure (22)



Figures (21) & (22): **Distribution of the different subgroups of the household miscellaneous group, *according to the type of the household product.***

Table (15): **Distribution of the whole studied cases, *according to the sex and age:***

Parameter		No.	%
Sex	**Male**	93	50.3
	Female	92	49.7
	Total	**185**	**100.0**
Age	**(< 6) years**	95	51.4
	(6 -18) years	17	9.1
	(18 - 50) years	66	35.7
	(> 50) years	7	3.8
	Total	**185**	**100.0**

Table (16): **Distribution of the different groups of the studied cases, *according to the sex and age:***

Parameter / Group		Pesticides group		Hydrocarbons group		Cleaning & disinfectant products group		Miscellaneous group	
		No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Sex	**Male**	37	41.6	26	68.4	24	47.1	6	85.7
	Female	52	58.4	12	31.6	27	52.9	1	14.3
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**
Age	**(< 6) years**	31	34.8	29	76.3	29	56.9	6	85.7
	(6-18) years	9	10.1	2	5.3	5	9.8	1	14.3
	(18-50) years	44	49.4	7	18.4	15	29.4	0	0.0
	(> 50) years	5	5.6	0	0.0	2	3.9	0	0.0
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**

Table (17): **Distribution of the whole studied cases, *according to the container of the household product and the manner of poisoning:***

Parameter		No.	%
Container of product	**Original**	100	54.0
	Not original	72	39.0
	Mixed with food	13	7.0
	Total	**185**	**100.0**
Manner of toxicity	**Accidental**	130	70.0
	Suicidal	48	30.0
	Homicidal	0	0.0
	Total	**185**	**100.0**

Table (18): **Distribution of the different groups of the studied cases, *according to the container of the household product and the manner of poisoning:***

Parameter / Group		Pesticides group		Hydrocarbons group		Cleaning & disinfectant products group		Miscellaneous group	
		No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Container of product	**Original**	52	58.4	8	21.1	34	66.7	6	85.7
	Not original	24	26.9	30	78.9	17	33.3	1	14.3
	Mixed with food	13	14.7	0	0.0	0	0.0	0	0.0
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**
Manner of poisoning	**Accidental**	41	46.1	35	92.1	47	92.2	7	100.0
	Suicidal	48	53.9	3	7.9	4	7.8	0	0.0
	Homicidal	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**

Table (19): Relation between the mean age and the manner **of household products poisoning among the studied groups:**

Group	Manner		Age (years)				
			(< 6)	(6 -18)	(18 - 50)	(> 50)	Total
Pesticides group	Accidental	No.	31	3	5	2	41
		%	**75.6**	7.3	12.2	4.9	100.0
	Suicidal	No.	0.0	6	38	4	48
		%	0.0	12.5	**79.2**	8.3	100.0
	Total	No.	31	9	43	6	89
		%	34.8	10.1	48.3	6.7	100.0
Hydrocarbons group	Accidental	No.	30	1	4	0	35
		%	**85.7**	2.9	11.4	0.0	100.0
	Suicidal	No.	0	0	3	0	3
		%	0.0	0.0	**100.0**	0.0	100.0
	Total	No.	30	1	7	0	38
		%	78.9	2.6	18.4	0.0	100.0
Cleaning & disinfectant products group	Accidental	No.	30	3	12	2	47
		%	**63.8**	6.4	25.5	4.3	100.0
	Suicidal	No.	0	1	3	0	4
		%	0.0	25.0	**75.0**	0.0	100.0
	Total	No.	30	4	15	2	51
		%	58.8	7.8	29.4	3.9	100.0
Miscellaneous group	Accidental	No.	6	1	0	0	7
		%	**85.7**	14.3	0	0	100.0
	Suicidal	No.	0	0	0	0	0
		%	0.0	0.0	0.0	0.0	0.0
	Total	No.	6	1	0	0	7
		%	85.7	14.3	0.0	0.0	100.0

***Table (20): Relation between the sex and the manner* of household products poisoning among the studied groups:**

Group	Manner		Sex		
			F	M	Total
Pesticides group	Accidental	No.	17	24	41
		%	41.5	**58.5**	100.0
	Suicidal	No.	35	13	48
		%	**72.9**	27.1	100.0
	Total	No.	52	37	89
		%	58.4	41.6	100.0
Hydrocarbons group	Accidental	No.	9	26	35
		%	25.7	**74.3**	100.0
	Suicidal	No.	3	0	3
		%	**100.0**	0.0	100.0
	Total	No.	12	26	38
		%	31.6	68.4	100.0
Cleaning & disinfectant products group	Accidental	No.	24	23	47
		%	51.1	**48.9**	100.0
	Suicidal	No.	3	1	4
		%	**75.0**	25.0	100.0
	Total	No.	27	24	51
		%	52.9	47.1	100.0
Miscellaneous group	Accidental	No.	1	6	7
		%	14.3	**85.7**	100.0
	Suicidal	No.	0	0	0
		%	0.0	0.0	0.0
	Total	No.	1	6	7
		%	14.3	85.7	100.0

***Table (21): Relation between the manner of poisoning and the container of household products* among the studied groups:**

Group	Manner		Container		
			Not original	Original	Total
Pesticides group	**Accidental**	**No.**	22	19	41
		%	**53.7**	46.3	100.0
	Suicidal	**No.**	5	43	48
		%	10.4	**89.6**	100.0
	Total	**No.**	27	62	89
		%	30.3	69.7	100.0
Hydrocarbons group	**Accidental**	**No.**	28	7	35
		%	**80.0**	20.0	100.0
	Suicidal	**No.**	1	2	3
		%	33.3	**66.7**	100.0
	Total	**No.**	29	9	38
		%	76.4	23.6	100.0
Cleaning & disinfectant products group	**Accidental**	**No.**	17	30	47
		%	**36.2**	63.8	100.0
	Suicidal	**No.**	0	4	4
		%	0.0	**100.0**	100.0
	Total	**No.**	17	34	51
		%	33.3	66.7	100.0
Miscellaneous group	**Accidental**	**No.**	1	6	7
		%	14.3	**85.7**	100.0
	Suicidal	**No.**	0	0	0
		%	0.0	0.0	0.0
	Total	**No.**	1	6	7
		%	14.3	85.7	100.0

NB: The original containers include that mixed with food.

Table (22): **Distribution of the whole studied cases according to *the residence and the place at which the household product was stored at home*:**

Parameter		No.	%
Residence	**Rural**	124	67.1
	Urban	61	32.9
	Total	**185**	**100.0**
Place at home	**Kitchen**	82	44.3
	Bedroom	36	19.5
	Bathroom	36	19.5
	Hall	14	7.6
	Other places	17	9.1
	Total	**185**	**100.0**

Other places = (living room, under stairs, garage …etc).

Table (23): **Distribution of the different groups of the studied cases according to *the residence and the place at which the household product was stored at home*:**

Parameter \ Group		Pesticides group		Hydrocarbons group		Cleaning & disinfectant products group		Miscellaneous group	
		No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Residence	**Rural**	64	71.9	27	71.1	31	60.8	2	28.6
	Urban	25	28.1	11	28.9	20	39.2	5	71.4
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**
Place at home	**Kitchen**	41	46.1	16	42.1	25	49.0	0	0.0
	Bedroom	35	39.3	0	0.0	0	0.0	1	14.3
	Bathroom	3	3.4	6	15.8	22	43.1	5	71.4
	Hall	6	6.7	7	18.4	1	2.0	0	0.0
	Other places	4	4.5	9	23.6	3	6.0	1	14.3
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**

Other places = (living room, under stairs, garage …etc).

Table (24): **Distribution of the whole studied cases according to *the time of delay and the route of exposure to the household product*:**

Parameter		No.	%
Time of delay	**Within one hour**	115	62.1
	(1 - 6) hours	61	32.9
	(> 6) hours	8	4.5
	Unknown	1	0.5
	Total	**185**	**100.0**
Route of exposure	**Oral**	167	90.0
	Inhalation	11	6.0
	Dermal	7	4.0
	Total	**185**	**100.0**

Table (25): **Distribution of the different groups of the studied cases according to *time of delay and the route of exposure to the household product*:**

Parameter \ Group		Pesticides group		Hydrocarbons group		Cleaning & disinfectant products group		Miscellaneous group	
		No.	%	No.	%	No.	%	No.	%
Time of delay	**Within one hour**	42	47.0	26	68.4	41	80.4	6	85.7
	(1 - 6) hours	43	48.0	10	26.3	7	13.7	1	14.3
	(> 6) hours	3	3.5	2	5.3	3	5.9	0	0.0
	Unknown	1	1.5	0	0.0	0	0.0	0	0.0
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**
Route of exposure	**Oral**	81	91.0	37	97.4	42	82.4	7	100.0
	Inhalation	3	3.4	0	0.0	8	15.7	0	0.0
	Dermal	5	5.6	1	2.6	1	2.0	0	0.0
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**

Table (26): **Correlation between *the time of delay* and *the severity of poisoning* among the acute household OP, CM, and hydrocarbons intoxicated cases:**

Group	r	p
OP	0.54	< 0.05
CM	0.15	> 0.05
Hydrocarbons	0.35	< 0.05

OP = Organophosphorous**, CM =** carbamates**.**

Table (27): **Distribution of the whole studied cases according to the admission place and the outcome of poisoning:**

Parameter		No.	%
Admission place	**Observation**	72	39.1
	Inpatient	93	50.2
	ICU	17	9.1
	Referral	3	1.6
	Total	**185**	**100.0**
Outcome of poisoning	**Improvement**	180	97.4
	Improvement after referral	3	1.6
	Death	2	1.0
	Total	**185**	**100.0**

ICU = intensive care unit, **Referral** = to Ain shams poison control center

Table (28): **Distribution of the different groups of the studied cases according to the admission place and the outcome of poisoning:**

Parameter \ Group		Pesticides group		Hydrocarbons group		Cleaning & disinfectant products group		Miscellaneous group	
		No.	%	No.	%	No.	%	No.	%
Admission place	Observation	25	28.1	11	28.9	29	56.9	7	100.0
	Inpatient	55	61.9	18	47.4	20	39.2	0	0.0
	ICU	7	7.8	9	23.7	1	2.0	0	0.0
	Referral	2	2.2	0	0.0	1	2.0	0	0.0
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**
Outcome of poisoning	Improvement	85	95.6	38	100.0	50	98.0	7	100.0
	Improvement after referral	2	2.2	0	0.0	1	2.0	0	0.0
	Death	2	2.2	0	0.0	0	0.0	0	0.0
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**

ICU = intensive care unit

Referral = to Ain shams poison control center

Table (29): **Distribution of the whole studied cases according to the home treatment and the past medical history:**

Parameter		No.	%
Home treatment	**None**	115	62.2
	Salty water	40	21.7
	Egg and milk	22	11.8
	Mechanical	5	2.7
	Others	3	1.6
	Total	**185**	**100.0**
Past medical history	**None**	169	91.4
	Hypertension	1	0.5
	DM	3	1.7
	Peptic ulcer	1	0.5
	Psychiatric disease	5	2.7
	Asthma	5	2.7
	Epilepsy	1	0.5
	Total	**185**	**100.0**

DM = diabetes mellitus
Others = lemon juice and water

Table (30): **Distribution of the different groups of the studied cases according to the home treatment and the past medical history:**

Parameter \ Group		Pesticides group		Hydrocarbons group		Cleaning & disinfectant products group		Miscellaneous group	
		No.	%	No.	%	No.	%	No.	%
Home treatment	None	59	66.3	26	68.4	26	51.0	4	57.1
	Salty water	28	31.5	6	15.8	6	11.8	0	0.0
	Egg and milk	0	0.0	5	13.2	15	29.4	2	28.6
	Mechanical	1	1.1	1	2.6	3	5.9	0	0.0
	Others	1	1.1	0	0.0	1	2.0	1	14.3
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**
Past medical history	None	84	94.5	36	94.8	43	84.4	6	85.7
	Hypertension	1	1.1	0	0.0	0	0.0	0	0.0
	DM	0	0.0	1	2.6	2	3.9	0	0.0
	Peptic ulcer	1	1.1	0	0.0	0	0.0	0	0.0
	Psychiatric disease	3	3.3	0	0.0	2	7.8	0	0.0
	Asthma	0	0.0	1	2.6	4	3.9	0	0.0
	Epilepsy	0	0.0	0	0.0	0	0.0	1	14.3
	Total	**89**	**100.0**	**38**	**100.0**	**51**	**100.0**	**7**	**100.0**

DM = diabetes mellitus
Others = lemon juice and water

Table (31): **Comparison between organophosphorous (OP) compounds and carbamates (CM) intoxicated cases according to (sex, residence, place, container, route and manner):**

Pesticide type		OP		CM	
		No.	%	No.	%
Sex	Female	12	40.0	19	63.3
	Male	18	60.0	11	36.7
	Total	**30**	**100.0**	**30**	**100.0**
Residence	Rural	26	86.7	21	70.0
	Urban	4	13.3	9	30.0
	Total	**30**	**100.0**	**30**	**100.0**
Place of storage of the household product	Bathroom	2	6.7	1	3.3
	Bedroom	10	33.3	11	36.7
	Hall	3	10.0	1	3.3
	Kitchen	12	40.0	17	56.7
	Other places	3	10.0	0	0.0
	Total	**30**	**100.0**	**30**	**100.0**
Container of the household product	Not original	6	20.0	0	0.0
	Original	24	80.0	23	76.6
	Mixed with food	0	0.0	7	23.4
	Total	**30**	**100.0**	**30**	**100.0**
Route of exposure	Oral	24	80.0	30	100.0
	Inhalation	2	6.7	0	0.0
	Dermal	4	13.3	0	0.0
	Total	**30**	**100.0**	**30**	**100.0**
Manner of toxicity	Accidental	20	66.7	7	23.3
	Suicidal	10	33.3	23	76.7
	Homicidal	0	0.0	0	0.0
	Total	**30**	**100.0**	**30**	**100.0**

Other places = (living room, under stairs, garage …etc).

X^2=4.6 **p>0.05**

Table (32): **Comparison between organophosphorous (OP) compounds and carbamates (CM) intoxicated cases according to (age, admission place, outcome and delay):**

Pesticide type		OP		CM	
		No.	%	No.	%
Mean age	(< 6) years	17	56.7	4	13.3
	(6 -18) years	4	13.3	4	13.3
	(18 - 50) years	7	23.3	21	70.0
	(> 50) years	2	6.7	1	3.3
	Total	**30**	**100.0**	**30**	**100.0**
Admission place	Inpatient	16	53.3	21	70.0
	ICU	6	20	1	3.3
	Observation	6	20	8	26.7
	Referral	2	6.7	0	0.0
	Total	**30**	**100.0**	**30**	**100.0**
Outcome	Improvement	26	86.6	30	100.0
	Referral + Improvement	2	6.7	0	0.0
	Death	2	6.7	0	0.0
	Total	**30**	**100.0**	**30**	**100.0**
Delay	Within one hour	8	26.7	18	60.0
	(1 - 6) hours	19	63.3	12	40.0
	(> 6) hours	2	6.7	0	0.0
	Unknown	1	3.3	0	0.0
	Total	**30**	**100.0**	**30**	**100.0**

ICU = intensive care unit **X^2=6.5** **p>0.05**

Table (33): **Distribution of the hydrocarbons intoxicated cases according to (sex, residence, place at home, container of product, route and manner of poisoning):**

Hydrocarbon type		Kerosene		Other HCO		Total	
		No.	%	No.	%	No.	%
Sex	Female	10	30.3	2	40.0	12	31.6
	Male	23	69.7	3	60.0	26	68.4
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**
Residence	Rural	25	75.8	3	60.0	28	74.0
	Urban	8	24.2	2	40.0	10	26.0
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**
Place at home	Bathroom	5	15.2	1	20.0	6	15.8
	Bedroom	0	0.0	0	0.0	0	0.0
	Hall	6	18.2	1	20.0	7	18.6
	Kitchen	14	42.4	2	40.0	16	42.0
	Other places	8	24.2	1	20.0	9	23.6
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**
Container of product	Not original	25	75.8	5	100.0	30	79.0
	Original	8	24.2	0	0.0	8	21.0
	Mixed with food	0	0.0	0	0.0	0	0.0
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**
Route of poisoning	Oral	32	97.0	5	100.0	37	97.0
	Inhalation	0	0.0	0	0.0	0	0.0
	Dermal	1	3.0	0	0.0	1	3.0
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**
Manner of poisoning	Accidental	31	93.9	4	80.0	35	92.0
	Suicidal	2	6.1	1	20.0	3	8.0
	Homicidal	0	0.0	0	0.0	0	0.0
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**

HCO= hydrocarbons

Other places = (living room, under stairs, garage …etc).

Table (34): **Distribution of the hydrocarbons intoxicated cases according to (age, admission place, outcome of poisoning and time of delay):**

Hydrocarbon type		Kerosene		Other HCO		Total	
		No.	%	No.	%	No.	%
Mean age	(< 6) years	26	78.8	3	60.0	29	76.3
	(6 -18) years	2	6.1	0	0.0	2	5.5
	(18 - 50) years	5	15.2	2	40.0	7	18.4
	(> 50) years	0	0.0	0	0.0	0	0.0
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**
Admission place	Inpatient ward	17	51.5	1	20.0	18	47.3
	ICU	7	21.2	2	40.0	9	23.7
	Observation	9	27.3	2	40.0	11	29.0
	Referral	0	0.0	0	0.0	0	0.0
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**
Outcome of poisoning	Improvement	33	100.0	5	100.0	38	100.0
	Referral + Improvement	0	0.0	0	0.0	0	0.0
	Death	0	0.0	0	0.0	0	0.0
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**
Time of delay	Within one hour	23	69.7	3	60.0	26	68.5
	(1 - 6) hours	8	24.2	2	40.0	10	26.0
	(> 6) hours	2	6.1	0	0.0	2	5.5
	Unknown	0	0.0	0	0.0	0	0.0
	Total	**33**	**100.0**	**5**	**100.0**	**38**	**100.0**

ICU = intensive care unit, **Referral =** to Ain shams poison control center

Table (35): **Seasonal distribution of the hydrocarbons intoxicated cases:**

Season of exposure	No.	%
Autumn (October, November & December)	5	13.1
Winter (January, February & March)	3	7.9
Spring (April, May & June)	11	29.0
Summer (July, August & September)	19	50.0
Total	**38**	**100.0**

Table (36): **Comparison between organophosphorous (OP) compounds and carbamates (CM) intoxicated cases according to the clinical manifestations (cholinergic toxidrome):**

Clinical manifestations		OP		CM		Total		X^2	p
		No.	%	No.	%	No.	%		
Meiosis	-	11	37.0	12	40.0	23	38.3	**0.1**	**>0.05**
	+	19	63.0	18	60.0	37	61.7		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		
Secretions	-	9	30.0	12	40.0	21	35	**0.7**	**>0.05**
	+	21	70.0	18	60.0	39	65		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		
Vomiting and abdominal pain	-	8	26.6	8	26.6	16	26.6	**---**	**---**
	+	22	73.4	22	73.4	44	73.4		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		
Diarrhea	-	13	43.3	18	60.0	31	51.7	**0.2**	**>0.05**
	+	17	56.7	12	40.0	29	48.3		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		
Urine incontinence	-	18	60.0	22	73.3	40	66.7	**1.2**	**>0.05**
	+	12	40.0	8	26.7	20	33.3		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		
Fasciculations	-	19	63.3	23	76.7	42	70	**1.3**	**>0.05**
	+	11	36.7	7	23.3	18	30		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		
Muscle weakness	-	14	47.0	27	90.0	41	68.3	**15.7**	**<0.05**
	+	16	53.0	3	10.0	19	31.7		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		
Pulmonary edema	-	19	63.0	23	77.0	42	70	**1.3**	**>0.05**
	+	11	37.0	7	23.0	18	30		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		

+ = present, **-** = absent

Table (37): **Comparison between the household organophosphorous (OP) compounds and carbamates (CM) intoxicated cases according to the severity of poisoning:**

Severity		OP		CM		Total		X^2	p
		No.	%	No.	%	No.	%		
PSS	0 (Asymptomatic)	6	20.0	8	26.7	14	23.3	3.6	> 0.05
	1 (Mild)	8	26.7	8	26.7	16	26.7		
	2 (Moderate)	4	13.3	7	23.3	11	18.3		
	3 (Severe)	10	33.3	7	23.3	17	28.3		
	4 (Fatal)	2	6.7	0	0.0	2	3.3		
	Total	30	100.0	30	100.0	60	100.0		

PSS = poisoning severity score

Table (38): **Correlation between the severity of poisoning and the Glasgow coma scale (GCS) among the household organophosphorous (OP) compounds and carbamates (CM) intoxicated cases:**

Group	OP		CM	
	r	p	r	p
GCS / Severity	- 0.80	< 0.05	- 0.70	< 0.05

Table (39): **Comparison between organophosphorous (OP) compounds and carbamates (CM) cases according to the treatment measures:**

Treatment measures		OP		CM		Total		X^2	p
		No.	%	No.	%	No.	%		
Decontamination	GL & AC	12	40.0	12	40.0	24	40.0	**16.3**	**<0.05**
	Ipecac & AC	7	23.3	16	53.3	23	38.3		
	Nothing	5	16.7	0	0	5	8.33		
	Soap & water	6	20.0	0	0	6	10.0		
	AC	0	0	2	6.7	2	3.33		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		
Atropine	-	6	20.0	7	23.0	13	21.7	**0.1**	**>0.05**
	+	24	80.0	23	77.0	47	78.3		
	Total	**30**	**100**	**30**	**100.0**	**60**	**100**		
Oximes	-	14	46.0	27	90.0	41	68.3	**15.7**	**<0.05**
	+	16	54.0	3	10.0	19	31.7		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100**		

GL = gastric lavage
AC = activated charcoal
- = "Not treated with"
+ = "treated with"

Table (40): **Prevalence of the clinical manifestations in the household hydrocarbons intoxicated cases:**

Manifestations	No.		%
Asymptomatic	**8**		**21%**
Symptomatic	**30**		**79%**
	Manifestation	**No.**	**%**
Cough	-	7	23.3
	+	**23**	**76.6**
Odor	-	2	6.6
	+	**28**	**93.6**
Vomiting	-	16	53.3
	+	**14**	**46.6**
Abdominal distention	-	25	83.3
	+	**5**	**16.6**
Tachypnea	-	12	40
	+	**18**	**60.0**
Lung ronchi and cripitations	-	14	46.6
	+	**16**	**53.4**
Signs of respiratory distress	-	17	56.6
	+	**13**	**43.4**
Fever	-	23	76.6
	+	**7**	**23.3**

- = absent

+ = present

Table (41): **Distribution of the hydrocarbons intoxicated cases according to the poisoning severity score (PSS):**

PSS	No.	%
Grade 0	8	21.1
Grade 1	12	31.6
Grade 2	9	23.7
Grade 3	9	23.7
Grade 4	0	0.0
Total	**38**	**100.0**

Table (42): **Correlation between vomiting and (severity of poisoning & presence of chemical pneumonitis in chest X-ray) among the household hydrocarbons intoxicated cases:**

Hydrocarbon intoxicated cases	Vomiting		
	r	p	No.
Severity	0.75^{**}	< 0.001	38
Pneumonitis	0.77^{**}	< 0.001	38

Table (43): **Distribution of the hydrocarbons intoxicated cases according to the treatment measures:**

Treatment measures	No.	%
Skin and cloth decontamination	38	100.0
Syrup of Ipecac	0	0.0
Gastric lavage	0	0.0
Humefied oxygen	38	100.0
Antibiotics	27	71.1
Steroids	11	28.9

Table (44): **Comparison between organophosphorous (OP) compounds and carbamates (CM) intoxicated cases according to the different laboratory findings:**

Laboratory finding		OP		CM		Total		X^2	p
		No.	%	No.	%	No.	%		
Hyperglycemia	Absent	22	73.3	25	82.3	47	78.3	**0.4**	**> 0.05**
	Present	8	26.7	5	17.7	13	21.7		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100.0**		
Hypokalemia	Absent	24	80.0	24	80.0	48	80.0	---	---
	Present	6	20.0	6	20.0	12	20.0		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100.0**		
Increased AST	Absent	22	73.3	26	86.7	48	80.0	**0.9**	**>0.05**
	Present	8	26.7	4	13.3	12	20.0		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100.0**		
Increased ALT	Absent	26	86.7	27	90.0	53	88.3	**0.1**	**>0.05**
	Present	4	13.3	3	10.0	7	11.7		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100.0**		
Acidosis (respiratory or metabolic)	Absent	22	73.3	26	86.7	48	80.0	**0.9**	**>0.05**
	Present	8	26.7	4	13.3	12	20.0		
	Total	**30**	**100.0**	**30**	**100.0**	**60**	**100.0**		

AST = aspartate aminotranferase, **ALT** = alanine aminotransferase.

- Hyperglycemia: Mean = 185.5 mg/dl Standard deviation = ± 12.3

- Hypokalemia: Mean = 2.9 mmol/L Standard deviation = ± 0.7

- Increased AST: Mean = 50.6 U/L Standard deviation = ± 13.2

- Increased ALT: Mean = 56.2 U/L Standard deviation = ± 15.1

- Acidosis (pH): Mean = 7.30 Standard deviation = ± 0.4

Table (45): **Comparison between organophosphorous (OP) compounds and carbamates (CM) intoxicated cases according to the Butyrylcholinesterase (BuChE) level:**

BuChE level (% of normal)	Group						X^2	p
	OP		CM		Total			
	No.	%	No.	%	No.	%		
Normal	6	20.0	6	20.0	13	19.0	11.6	<0.05
50-100	7	23.0	3	10.0	10	17.2		
20-50	5	17.0	18	60.0	24	41.4		
10-20	7	23.0	2	7.0	7	12.1		
<10	5	17.0	1	3.0	6	10.3		
Total	**30**	**100.0**	**30**	**100.0**	**30**	**100.0**		

NB: BuChE level = percentage of the laboratory minimum normal value.

Table (46): **Relation between the severity of poisoning and the mean Butyrylcholinesterase (BuChE) level among organophosphorous (OP) compounds and carbamates (CM) intoxicated cases:**

Severity	BuChE level (% of normal)					
	OP			CM		
	No.	Mean	Std. Deviation	No.	Mean	Std. Deviation
0	6	96.32	0.654	8	92.50	0.707
1	8	53.59	10.605	8	39.62	8.348
2	4	47.50	11.030	7	37.83	15.126
3	10	18.40	9.898	7	21.56	9.647
4	2	5.55	3.323	0	---	---
Total	**30**	**33.05**	**20.647**	**30**	**38.24**	**21.134**

NB: BuChE level = percentage of the laboratory minimum normal value.

Table (47): **Correlation between the different laboratory findings and the severity of poisoning among the organophosphorous (OP) compounds and carbamates (CM) intoxicated cases:**

Laboratory finding	OP		CM	
	r	p	r	p
Serum potassium level	- 0.51	<0.05	- 0.42	<0.05
Serum glucose level	0.69	<0.05	0.47	<0.05
Serum ALT level	0.59	<0.05	0.45	<0.05
Serum AST level	0.67	<0.05	0.59	<0.05
Acidosis (respiratory or metabolic)	0.69	<0.05	0.55	<0.05
Butyrylcholinesterase level	- 0.91	<0.001	- 0.85	<0.001

AST = aspartate aminotranferase, **ALT** = alanine aminotransferase,
ABG = arterial blood gases.

Table (48): **Comparison of the serial Butyrylcholinesterase (BuChE) level in organophosphorous (OP) compounds and carbamates (CM) intoxicated cases:**

BuChE level		No.	Mean	Std. Deviation	f	p
OP	at admission	10	16.64	11.136	**0.2**	**>0.05**
	2nd sample	10	17.22	11.622		
	3rd sample	10	19.68	11.748		
	Total	**30**	**17.85**	**11.182**		
CM	at admission	10	26.37	12.934	**29.2**	**<0.05**
	2nd sample	10	48.05	14.751		
	3rd sample	10	73.20	13.409		
	Total	**30**	**49.21**	**23.538**		

NB: BuChE level = percentage of the laboratory minimum normal value.
2nd sample = (at 6 hours).
3rd sample = (at 12 hours).

Figure (23)

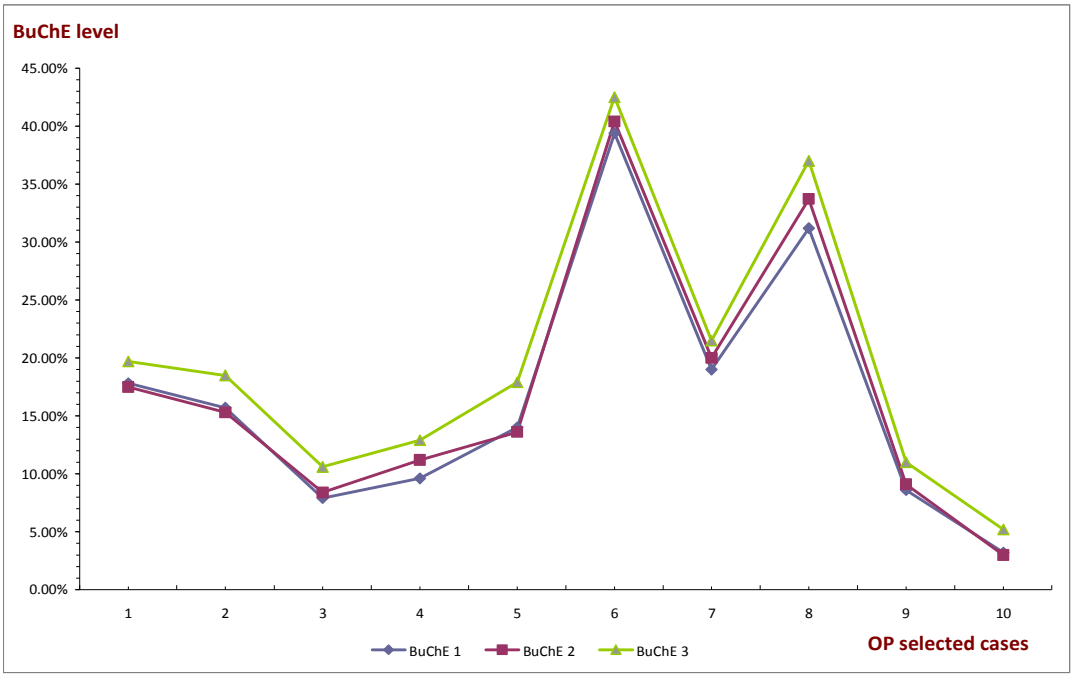


Figure (23): **Pattern of serial Butyrylcholinesterase (BuChE) levels in the household organophosphorous (OP) compounds intoxicated cases.**

Figure (24)

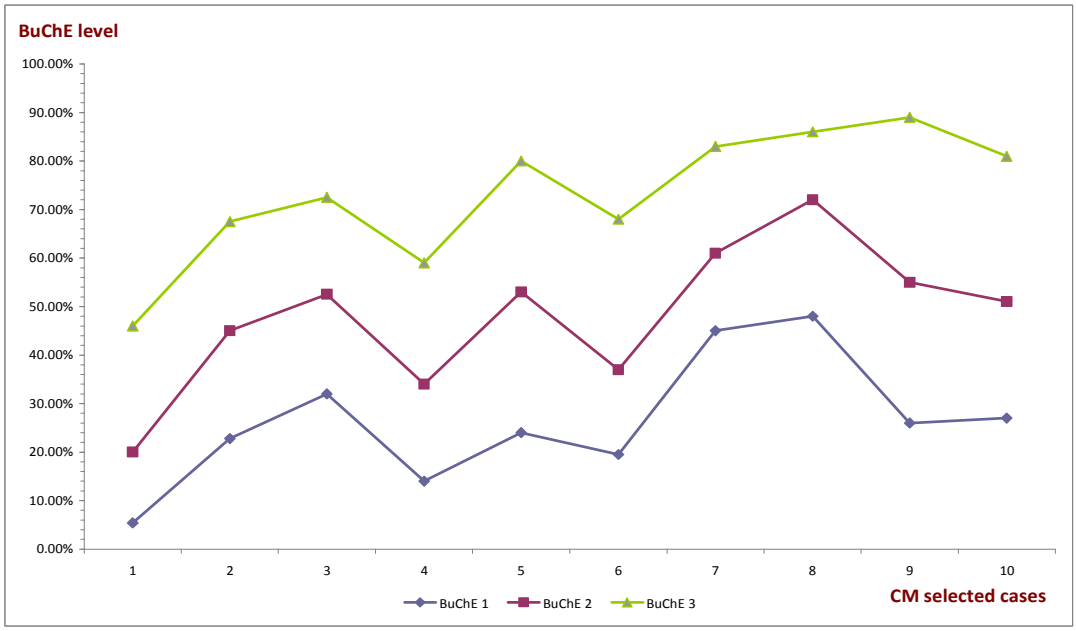


Figure (24): **Pattern of serial Butyrylcholinesterase (BuChE) levels in the household carbamates (CM) intoxicated cases.**

NB: - BuChE level = percentage of the laboratory minimum normal value.
- **BuChE 1** (blue) = (1st sample at admission), **BuChE 2** (red) = (2nd sample at 6 hours), **BuChE 3** (green) = (3rd sample at 12 hours).

Table (49): **Distribution of hypernatremia among the cases that were received prehospital (home) treatment with salty water among the different household products groups:**

Group	Hypernatremia	No.	%
Pesticides group	**+ (Mean= 160.1, SD= ±8.1)**	10	36.0
	-	18	64.0
	Total	**28**	**100.0**
Hydrocarbons group	**+ (Mean= 158.5, SD= ±9.4)**	3	50.0
	-	3	50.0
	Total	**6**	**100.0**
Cleaning products & disinfectants group	**+ (Mean= 159.2, SD= ±6.5)**	2	33.3
	-	4	66.7
	Total	**6**	**100.0**
Miscellaneous group	**No cases had prehospital (home) treatment**		

(+) present, **(-)** absent
SD = Standard Deviation.

Table (50): **Correlation between hypernatremia as a laboratory finding and the Glasgow coma scale (GCS) score among the household products intoxicated cases that were received prehospital (home) treatment with salty water:**

Household intoxicated cases	r	p
GCS score / Hypernatremia	- 0.36	< 0.001

Table (51): **Distribution of the hydrocarbons intoxicated cases according to leukocytosis:**

Leukocytosis	No.	%
-	21	55.3
+ (Mean= 15.700, SD= ±13.7)	17	44.7
Total	**38**	**100.0**

(+) = present, (-) = absent
SD = Standard Deviation.

Table (52): **Correlation between leukocytosis and (severity of poisoning & presence of chemical pneumonitis in chest X-ray) among the household hydrocarbons intoxicated cases:**

Hydrocarbon intoxicated cases	Leukocytosis		
	r	p	No.
Severity	0.62^{**}	<0.001	38
Pneumonitis	0.68^{**}	<0.001	38

Table (53): **Distribution of the hydrocarbons intoxicated cases according to the plain chest X-ray findings (*type*):**

X-ray findings	No.	%
Free (normal)	10	26.3
Increased broncho-vascular markings (only)	12	31.5
Basal infiltrations (basilar pneumonitis) + BVM	8	21.1
Diffuse small patches (diffuse pneumonitis) + BVM	8	21.1
Total	**38**	**100.0**

+PVM = Increased bronchovascular marking

Table (54): **Distribution of the hydrocarbons intoxicated cases according to the plain chest X-ray findings (*side*):**

X-ray side distribution	No.	%
Free (normal)	10	26.3
Right Side only	7	18.4
Left side only	0	0.0
Right & left equally	9	23.7
Right & left but more at right side	12	31.6
Total	**38**	**100.0**

Table (55): **Relation between the plain chest X-ray findings and the severity of poisoning among the acute household hydrocarbons intoxicated cases:**

PSS / X-ray findings	0		1		2		3	
	No.	%	No.	%	No.	%	No.	%
Free	4	50.0	5	45.0	1	10.0	0	0.0
+BVM (only)	4	50.0	6	55.0	2	20.0	0	0.0
Basal infiltration + BVM	0	0.0	0	0.0	5	50.0	3	33.3
Diffuse pneumonitis +PVM	0	0.0	0	0.0	2	20.0	6	66.7
Total	**8**	**100.0**	**11**	**100.0**	**10**	**100.0**	**9**	**100.0**

PSS = poisoning severity score
+BVM = Increased bronchovascular markings
NB: None of cases of PSS = 4 (No fatal cases).

Figure (25)

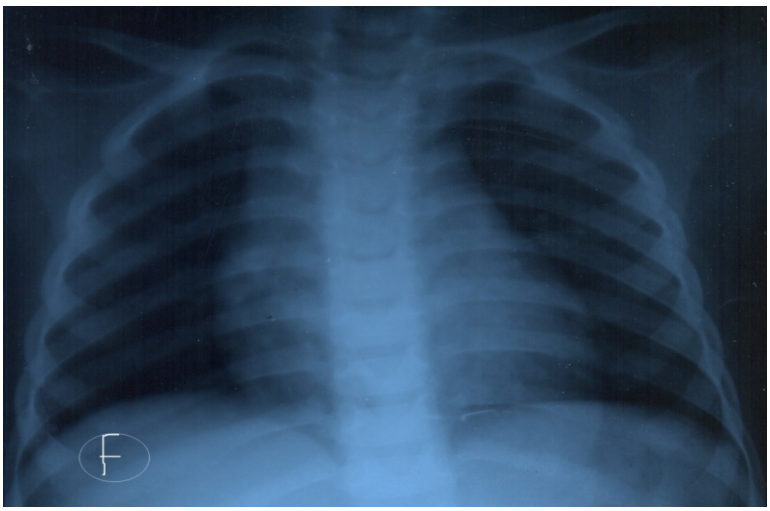


Figure (25): **Plain chest x-ray in an acute household hydrocarbon intoxicated case showing normal findings (free pattern).**

Figure (26)

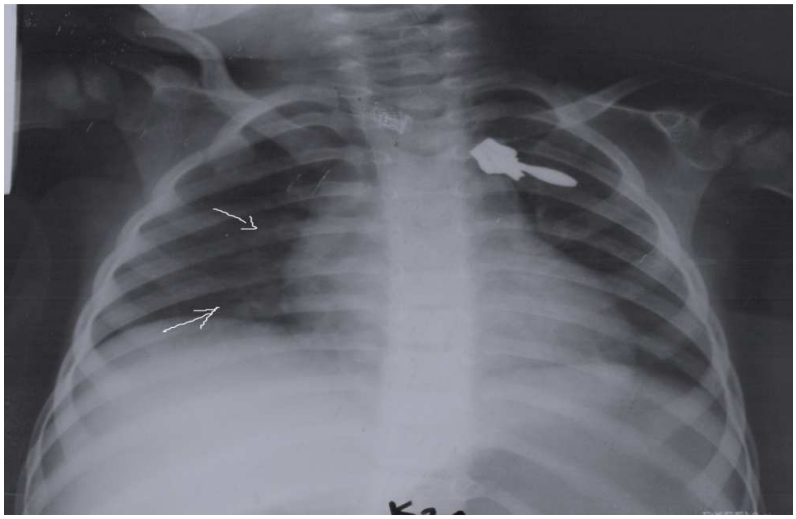


Figure (26): **Plain chest x-ray in an acute household hydrocarbon intoxicated case, showing unilateral increased bronchiovascular markings at the right side.**

Figure (27)

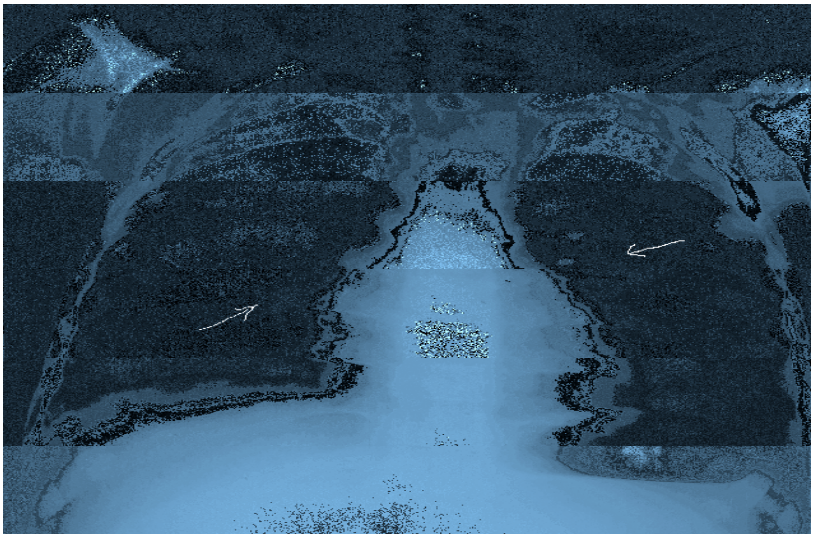


Figure (27): **Plain chest x-ray in an acute household hydrocarbon intoxicated case showing bilateral increased broncho-vascular markings (equal in both sides).**

Figure (28)

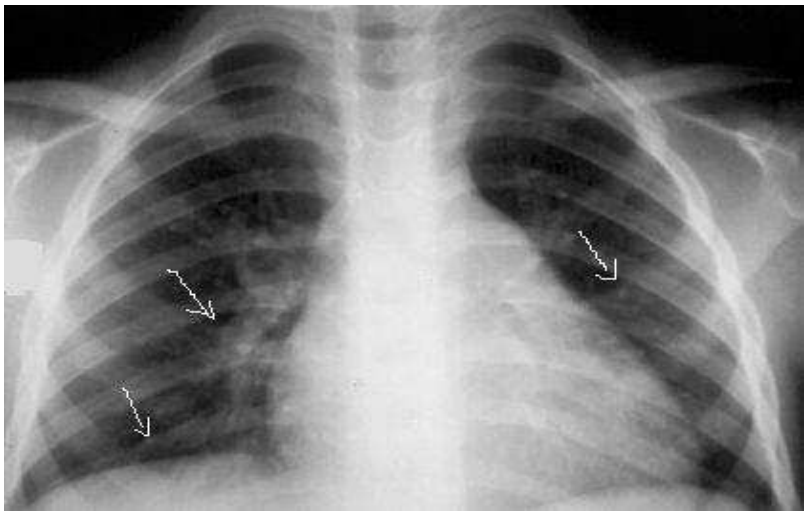


Figure (28): **Plain chest x-ray in an acute household hydrocarbon intoxicated case, showing bilateral increased broncho-vascular markings, but more at the right side.**

Figure (29)

Figure (29): **Plain chest x-ray in an acute household hydrocarbon intoxicated case showing:**

1. **Basal pneumonic infiltration (mainly at right side).**
2. **Bilateral increased broncho-vascular markings, but more at the right side.**

Figure (30)

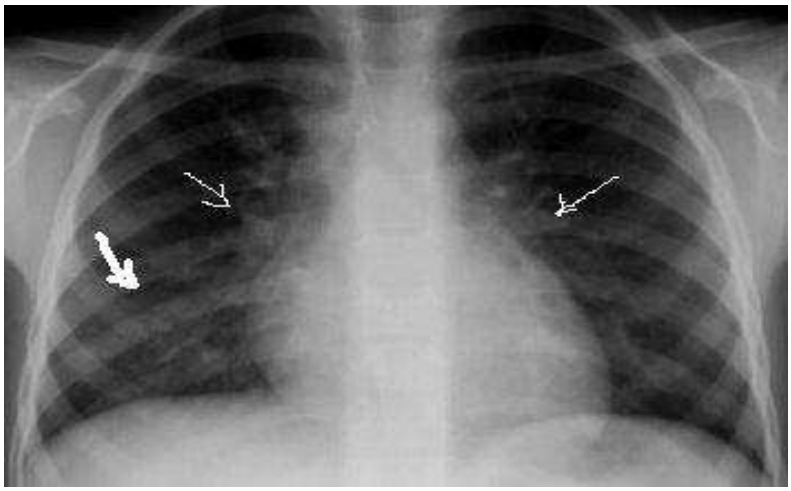


Figure (30): **Plain chest x-ray in an acute household hydrocarbon intoxicated case showing:**

1. **Basal pneumonic infiltration (at right side).**
2. **Bilateral increased broncho-vascular markings, but more at the right side.**

Figure (31)

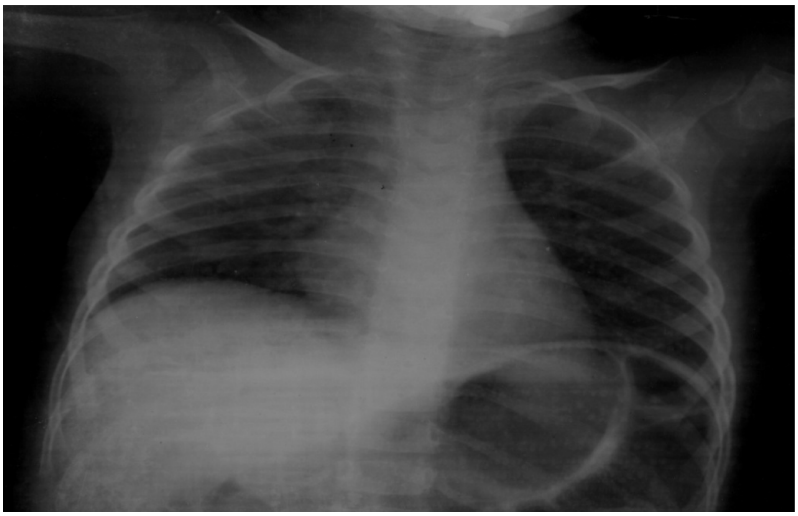


Figure (31): **Plain chest x-ray in an acute household hydrocarbon intoxicated case showing diffuse pneumonic patches.**

Figure (32)

Figure (32): **Plain chest x-ray in an acute household hydrocarbon intoxicated case, showing diffuse pneumonic patches.**