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ESTIMATION OF LEAD ELEMENT IN THE BLOOD OF TRAFFIC POLICE IN THE CITY OF BAGHDAD.

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ABSTRACT

The current study aimed to determine the relation between the lead levels in the blood traffic men and the nature of their traffic work in Baghdad governorate. Blood samples were collected from 10 traffic men and the age about from 20-39 year from Directorate of Traffic Al Rusafa/ Baghdad and 10 samples another control from traffic men too with age 30-49 year and they livedrelatively in the clear cities or contained of Very few traffic areas. The levels of lead in blood estimated by used Atomic Absorption Spectrometry.

The result stated that there is no rising of the levels of lead in blood of traffic men Lead concentration was with more a range from 14 ppm in Traffic police are not healthy They are within the permissible limits, Approximately 8 ppm of Control group. the study referred to There is no correlation between lead level by side and age and length of service period on the other.

Key words: the level of lead, Traffic police.

تقدير عنصر الرصاص في دم رجال المرور في مدينة بغداد

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الخلاصة

هدفت الدراسة الحالية تحديد العلاقة بين مستويات الرصاص في دم رجال المرور وطبيعة عملهم المروري في محافظة بغداد. جمعت عينات الدم من 10 رجال مرور شرطة وباعمار تراوحت من 20-39 سنة من مديرية مرور الرصافة/ بغداد و10 عينة سيطرة اخرى من رجال شرطة مرور ايضاً وباعمار 30-49 سنة ويسكنون نسبياً في مناطق نظيفة او تحوي على مساحات مرورية قليلة جداً. قدرت مستويات الرصاص في الدم باستخدام جهاز طيف الامتصاص الذري.

اظهرت النتائج بان ليس هناك ارتفاع في مستويات الرصاص في دم رجال المرور فقد كان تركيز الرصاص بمدى اكثر من 14 ppm في رجال شرطة المرور غير الصحيين وهي ضمن الحدود المسموح بها، وتقريباً 8 ppm في مجموعة السيطرة. كما اشارت الدراسة الى عدم وجود ارتباط بين مستوى الرصاص من جانب والعمر وطول مدة الخدمة من جانب آخر.

الكلمات المفتاحية: مستوى الرصاص ، شرطة المرور .

INTRODUCTION:

Air pollution is caused by many materials and processes such as cars, buses and carriages when fuel burns (gasoline or diesel) many chemicals cause pollution in the atmosphere **(Rahama, *et al.*, 2011)**. Perhaps the most lethal lead is the addition of Tetraethyllead (T. E. L) To fuel cars to prevent The occurrence of confusion and Clicking **(Agha, *et al.*, 2005; Mubarak, 2016)**. Lead is a natural component of the earth's crust where it represents 16 mg/ kg from the soil; it is present as lead sulfide, It is one of the oldest minerals

which the human is treat and it have in air and water and food And even snow In the form of compounds for Inorganic compounds **(Al-Saadi, 2011; Mubarak, 2016; Othman, *et al.*, 2003; Pervez, *et al., 2015*)**. Lead and its compounds have been known to have toxic effects in the societies near of mining areasBecause it is a heavy elements in addition industrial pollution areas **(Ahmed, 2009; Othman, *et al.* ,2003)**. and the previous studies is stating that Most body organs is affected by lead as Channel of digestion, Blood transfusion apparatus, Neurosurgery, bones ,liver ,Male and female reproductive system, immune system and other systems, As a result of absorption of lead compounds for swelling it **(Ahmed, 2009; Elewi, 2012; Mubarak, 2016; Othman, *et al.*, 2003)**.While the absorption of lead through the lung depends on the size of its particles and its purity and depth of breathing and its rate therefore the large components on mucous membrane lining the respiratory tract and some of them may eventually ingest the lead to the blood stream It is distributed to soft tissues and bones with the ability to deposit and accumulate lead over time then lead to death**(Ali, *et al.*, 2012; Al-Saadi, 2011; AL-Shamri, *et al.*, 2010; Mubarak, 2016; Othman, *et al.*, 2003; Pervez, *et al.*, 2015).** the accepted level and ineffective for lead is exist 10 µg /100 ml for children, 25 µg /100 ml for adults either Acute toxicity of lead appears with level 120 µg /100 ml for adults, 80 µg /100 ml for children which cause creasing of Cerebral Spinal Pressure, spasms, Loss of consciousness, Acute encephalopathy and then death. the Antioxidant effects for lead may causing Anemia As well as Kidney damage occurs and have more effect of (intelligence quotient) I,Q and not ability for learning**(Agha, *etal.*, 2005; Ali,*etal.*, 2012; ALSaadi, 2011; Elewi, 2012; Mubarak, 2016; Rahama, *et al.*, 2011)**. The levels of lead less from 25 µg/100 ml may result from Toxic effects for nervous cells as Fatality, speed of frenzy, restlessness (uncomfortable), Headache, Severe vomiting, Delirium, turning and fainting, nervous tremor hallucinations and the children is considered more sensitively for lead Compared with adults because The central nervous system and Small body size and rate high Absorption as well as The child's inclination to put the things which meet it of his mouth during this month's **(Agha, *et a.l*, 2005; Mubarak, 2016; Rahama, *et al.*, 2011)**. The studies referred that Genetic effects for lead is updates Chromosomal aberrations on human cells Such as congenital malformations of births and increasing the deaths As a result of a gradual increase Cancer infections **(Mubarak, 2016)** .the study is aim to evaluate level of the lead of Serum of traffic men on Baghdad governorate and the effects environmental pollution on it.

MATERIALS AND METHODS:

The samples of blood was collect from 20 traffic man and directorate of traffic al Rusafa on Baghdad governorate with ages about from 20-49 year and their period service between 6-25 year and By work 6-9 hours/ day/ week .This entire sample from who are committed to the performance of their meals and also have no injuries or medical reviews have been exposed to radiation during the last six months. 2-5ml of blood was pulled by a disposable syringe covered from inter with lithium heparin to prevent Blood clotting. And a light tower of blood in the syringe to confirm the mixing of blood with heparin and used tourniquet Connects above the area of the cloud to open the vein and lift the ligament after the start of blood flow in the syringe and then collected syringes containing the blood in a special container temperature of about 1-4^{o}C And was transferred to the laboratories of the Market Research and Consumer Protection Center/ University of Baghdad to measure the level of lead in the blood by using Atomic Absorption spectrophotometer shimadizu model AA7000 and 1ml take from Serum and add 9ml Distilled water and then the samples Measured directly.

RESULTS AND DISCUSSIONS:

The levels lead was study of serum traffic men and it comprised the control group in order to know the range effect the lead of environment of work as mentioned of (Table, 1) Unhealthy traffic police found that their lead concentrations were within the permissible limits of the acceptable and ineffective level of 25µg/ 100 ml for adults according as mentioned Mubarak 2016.

Table (1): Sample distribution on lead concentration.

Sample	No of samples	lead concentration ppm
Unhealthy traffic police	10	14,8692
Control group	10	7,8750
P-value	----	0.0036 **
**** (P<0.01).**		

And (Tables 2 and 3) sample distribution study on Rank of unhealthy traffic policemen and control group that 50% from sample were with rank Head of Ordinaries of unhealthy traffic policemen and 40% from control group with same rank.

Table (2): Sample distribution on rank of control group.

Sample	No of samples	Percentage (%)
Lance-corporal	2	20
Corporal	3	30
Chief Sergeantc	4	40
Commissioner	1	10
Total	10	100
P-value	----	0.0004 **
**** (P<0.01).**		

Table (3): Distribution the sample on the rank in Traffic police men.

Sample	No. of samples	Percentage (%)
Lance-corporal	2	20
Corporal	1	10
Chief Sergeant	2	20
Commissioner	5	50
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Whereas (Tables 4 and 5) showed the distribution of the sample according to the social situation.that all samples of the study were non-healthy, married and the control group was 90%.

Table (4): Distribution the sample on the social situation in the control group.

Sample	No. of samples	Percentage (%)
Single	1	10
Married	9	90
Divorced	0	0
Widowed	0	0
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Table (5): Distribution the sample on Traffic police men non-healthy.

Sample	No. of samples	Percentage (%)
Single	0	0
Married	10	100
Divorced	0	0
Widowed	0	0
Total	10	100
P-value	----	0.0001 **
** (P<0.01).		

We see in (Tables 6 and 7) distribution of the sample on the age, it was seen that 80% of the control group, aged between 30 and 39 years, as well as traffic police are not healthy, their percentage 50%.

Table (6): Distribution of the sample on the age in the control group.

Percentage (%)	No. of samples	Sample (year)
0	0	20-29
80	8	30-39
20	2	40-49
0	0	50-59
0	0	60-69
100	10	Total
0.0001 **	---	P-value
** (P<0.01).		

Table (7): Distribution of the sample on the age of traffic policemen non-healthy.

Sample (year)	No. of samples	Percentage (%)
20-29	2	20
30-39	5	50
40-49	3	30
50-59	0	0
60-69	0	0
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

According to (Tables 8 and 9), the distribution of the sample of the study by the highest number of children in the control group was 30% with three children, while traffic policemen were not healthy with four children and by 30%.

Table (8): Distribution of the sample on the number of children in the control group.

Sample	No. of samples	Percentage (%)
None	1	10
1	1	10
2	2	20
3	3	30
4	2	20
5	1	10
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Table (9): Distribution of the sample on the number of children in Traffic police men non-healthy.

Sample	No. of samples	Percentage (%)
None	1	10
1	1	10
2	2	20
3	2	20
4	3	30
5	0	0
6	1	10
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Whereas the (Tables 10 and 11), we find the sample is distributed through the years of service. 60% of the checkpoint group has service years of 6-10 years, and 50% of the traffic policemen non-healthy are in the same number of years of service.

Table (10): distribution of the sample on the service years in the control group.

Sample (year)	No. of samples	Percentage (%)
6-10	6	60
11-15	4	40
16-20	0	0
21-25	0	0
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Table (11): Distribution of the sample on the service years in Traffic policemen non-healthy.

Sample (year)	No. of samples	Percentage (%)
6-10	5	50
11-15	4	40
16-20	0	0
21-25	1	10
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

According to (Tables 12 and 13), the distribution of the sample showed the study on the nature of the work. Most of the samples were of an office working nature by 90% for the checkpoint group, As for the sample of the non-healthy traffic police, all the sample was of an office working nature.

Table (12): Distribution of the sample on the work nature in the control group.

Sample	No. of samples	Percentage (%)
Fieldwork	1	10
Desktop	9	90
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Table (13): Distribution of the sample on the work nature in Traffic policemen non-healthy.

Sample	No. of samples	Percentage (%)
Fieldwork	0	0
Desktop	10	100
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

According to (Tables 14 and 15), the distribution of the sample on working hours was that 90% of the control group working at 8 hours per day, whereas the sample of traffic policemen non- healthy at 50% the same working hours.

Table (14): Distribution of the sample on the working hours in the control group.

Sample (hour)	No. of samples	Percentage (%)
6	0	0
7	1	10
8	9	90
9	0	0
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Table (15): Distribution of the sample on the working hours in Traffic policemen non-healthy.

Sample (hour)	No. of samples	Percentage (%)
6	1	10
7	1	10
8	5	50
9	3	30
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

We find from (Tables 16 and 17) that the distribution of the sample of study according to the diseases affected by that all control group sample free of diseases, whereas the The sample in Traffic policemen non-healthy was almost 9% infected pressure blood and 18% with asthma.

Table (16): Distribution of the sample on the Diseases in the control group.

Sample	No. of samples	Percentage (%)
Pressure	0	0
Diabetes	0	0
Both of them	0	0
None	10	100
Others	0	0
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Table (17): Distribution of the sample on the Diseases in Traffic policemen non-healthy.

Sample	No. of samples	Percentage (%)
Pressure	1	9.1
Diabetes	0	0
Both of them	0	0
None	8	72.72
Others	2	18.18
Total	11	100
P-value	---	0.0001 **
** (P<0.01).		

According to (Tables 18 and 19), the distribution of the sample on smokers that , all the sample the checkpoint not smoking the cigarettes either sample in Traffic policemen non-healthy was 70% from smokers and 30% not smokers.

Table (18): Distribution of the sample on the smokers in control group.

Sample	No. of samples	Percentage (%)
Yes	0	0
No	10	100
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Table (19): Distribution of the sample on the smokers in Traffic policemen non-healthy.

Sample	No. of samples	Percentage (%)
Yes	7	70
No	3	30
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

According to (Tables 20 and 21), the distribution of the sample the study according to number of cigarettes that Traffic policemen non-healthy was smoke that 57% smoker 5 cigarettes or more and about 29% smoker The Arquila .

Table (20): Distribution of the sample on number of cigarettes in control group.

Sample (cigarettes)	No. of samples	Percentage (%)
4-1	0	0
5 and more	0	0
Arquila	0	0
Total	0	0
P-value	---	1.00 NS
NS: Non-Significant.		

Table (21): Distribution of the sample on number of cigarettes in Traffic policemen non-healthy.

Sample (cigarettes)	No. of samples	Percentage (%)
4-1	1	14.3
5 and more	4	57.2
Arquila	2	28.5
Total	7	100
P-value	---	0.0001 **
** (P<0.01).		

The (Table 22 and 23) the distribution of the sample on the study drinkers for Alcoholic beverages that the checkpoint didn't drink Alcoholic either sample Traffic policemen non-healthy was drink 10% from them drink Alcoholic.

Table (22): Distribution of the sample on drinker's alcoholic in control group.

Sample	No. of samples	Percentage (%)
Yes	0	0
No	10	100
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

Table (23): Distribution of the sample on drinker's alcoholic in Traffic policemen non-healthy.

Sample	No. of samples	Percentage (%)
Yes	1	10
No	9	90
Total	10	100
P-value	---	0.0001 **
** (P<0.01).		

The (Table 24 and 25) we notice that all of the sample on the study drinkers form Traffic policemen non-healthy was drink Alcoholic in ceremonies.

Table (24): Distribution of the amount the alcoholic in control group.

Sample	No. of samples	Percentage (%)
Less	0	0
rare	0	0
more	0	0
By ceremonies	0	0
Total	0	0
P-value	---	1.00 NS
NS: Non-Significant.		

Table (25): Distribution of the amount the alcoholic in Traffic policemen non-healthy.

Sample	No. of samples	Percentage (%)
Less	0	0
Rare	0	0
More	0	0
By ceremonies	1	100
Total	1	100
P-value	---	0.0001 **
** (P<0.01).		

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