

Sudan University of Science and Technology
College of Graduate Studies

Effect of Smoking on Level of Electrolytes
In Sudanese Male Smokers

أثر التدخين علي مستوي الشوارد الكهربيه لدي المدخنين السودانيين من الذكور

A dissertation submitted in partial fulfillment for requirements of

M.Sc. degree in clinical chemistry

by:

Yassmin Mohammed Ahmed Elshikh

Bsc.clinlcal chemistry,sudan university.2007

Higher diploma.clinical chemistry,sudan university.2010

Supervised :

Dr. Mariam Abbas Ibrahim

Assistant professor in clinical chemistry

Sudan University of Science and Technology

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الآية

قال تعالى:

(قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا^ط إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ)

صدق الله العظيم

سورة البقرة الآية (32)

Dedication

To the one who told me how to live

And how to success

and make me believe that if I want to gain the impossible I will
gain it

to

Yassir Yousif

Acknowledgment

Thanks:

To Allah for enabling to complete this study.

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To my parents who installed in me the good moral

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For redirecting, recorrecting and supervising.

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Abstract

This study was carried out to determine serum electrolytes in smokers. Seventy sample were collected from smokers men from Khartoum state during the period from Feb to Mar 2015 also 50 sample collected from non smokers as control group. The estimation was done by using automation Mindary BS200 for serum calcium and phosphate, iron selective electrode for serum sodium and potassium then statistically analysis by using SPSS program showed that is a significant difference increase in serum sodium, potassium, calcium and phosphate in smokers when compared with non smokers. The means of serum sodium, potassium, calcium and phosphate in smokers with control group are p value 0.000, 0.000, 0.003, 0.000 respectively.

Statistical analysis also showed a significant positive correlation between number of cigarette and amount of change in sodium. Potassium, calcium and phosphate significant positive correlation, serum sodium (p.value 0.000, $r=0.506$), serum potassium (p.value 0.000, $r=0.385$), serum calcium p.value 0.007, $r=0.318$), and the serum phosphate (p.value 0.002, $r=0.36$)

Statistical analysis also showed a significant positive correlation between duration of smoking and amount of change in sodium. potassium, calcium and phosphate significant positive correlation, serum sodium p.value 0.000, $r=0.552$), serum potassium p.value 0.000, $r=0.552$), serum calcium (p.value 0.000, $r=0.406$) and the serum phosphate (p.value 0.000, $r=0.532$).

The study concluded that smoking cigarettes are elevated serum electrolyte and the number of cigarettes per day and duration of smoking is positively correlation in change of electrolytes.

الخلاصه

تم جمع 70 عينه من المدخنين و50 عينه من غير المدخنين كمجموعه ضابطه من ولايه الخرطوم في الفتره من فبراير 2015 وحتى مارس 2015 تم قياس مستوي الشوارد الكهربيه باستخدام الطريقيه الانزيميه لكل من الكالسيوم والفوسفات و

عند تحليل النتائج احصائيا باستخدام الاختبار الاحصائي اظهرت هذه الدراسه:-

متوسط الصوديوم لدي المدخنين 143 ± 3.7 مقارنة بغير المدخنين 137 ± 2.4 بقيمه معنويه اقل من 0.05.

متوسط البوتاسيوم لدي المدخنين 4.1 ± 0.42 مقارنة بغير المدخنين 3.7 ± 0.23 بقيمه معنويه اقل من 0.05.

متوسط الكالسيوم لدي المدخنين 9.9 ± 0.75 مقارنة بغير المدخنين 9.5 ± 0.65 بقيمه معنويه اقل من 0.05.

متوسط الفوسفات لدي المدخنين 3.9 ± 0.62 مقارنة بغير المدخنين 3.2 ± 0.23 بقيمه معنويه اقل من 0.05.

وجد ايضا انه توجد علاقته ارتباط بين عدد السجائر في اليوم مع ازدياد تركيز الشوارد الكهربيه وان مده التدخين ايضا تؤثر علي ازدياد الشوارد الكهربيه، بقيمه معنويه اقل من 0.05.

خلصت هذه الدراسه علي ان التدخين يزيد من مستوي الشوارد الكهربيه وان عدد السجائر في اليوم ومده التدخين تؤثر ايضا علي زياده مستوي الشوارد الكهربيه.