

Sudan University of Science & Technology
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CONSTITUENTS OF URINARY CALCULI
IN SUDANESE PATIENTS
(A study in Khartoum state)

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DEDICATION

2 **To my parents, whom illuminated my way;**

- **To my husband for his patience;**
- **To my brothers and sisters.**

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Abstract

This prospective study was done during the period July to December 2003. It determined the chemical composition of the urinary stones, which was removed surgically from urinary system of forty patients, males and females, of an age 2-65 years; attended to Ibn-Sena hospital (Khartoum state). Blood samples were also collected from those patients for determination of serum calcium and urate levels.

This study aimed to analyze the urinary stones for calcium, oxalate, phosphate, carbonate, uric acid, magnesium, cystine, and cholesterol. Generally 90% of the stones were found to contain calcium oxalate, 82.5% uric acid, 45% magnesium, 7.5% phosphate, while carbonate, cystine and cholesterol were not detected as constituents of the stones in this study.

Serum calcium and urate were found to be normal in all patients in this study (means \pm SD : 9.6 ± 0.4 & 5.8 ± 0.5 mg/dL respectively).

Most of the stones removed from the kidneys were found to be small in size (less than 1 cm diameter), those removed from the ureter were found to be medium in size (1-2 cm diameter), while most of those removed from the urinary bladder were large in size (diameter more than 2 cm).

It was **concluded** that, most of the urinary stones contain mainly calcium-oxalate, and uric acid, in association with normal levels of serum calcium and urate. Urinary stones are more common in males compared to females and more common in patient from Khartoum city compared to those from Omdorman and Khartoum North cities. Most of the urinary stones were found in the young age group (up to 20 years) compared to the other age groups.

ملخص البحث

أجريت هذه الدراسة التوقعية خلال الفترة من يوليو حتى ديسمبر 2003 حيث تم التحليل الكيميائي لمكونات الحساوي البولية التي أزيلت جراحياً من الجهاز البولي ل 40 مريضاً بولاية الخرطوم (رجال-نساء) أعمارهم تتراوح ما بين (2-65 عام) حضروا لمستشفى ابن سينا (بولاية الخرطوم) إضافة لذلك فقد أخذت عينات دم من هؤلاء المرضى أيضاً لمعرفة مستوي كل من الكالسيوم و ملح الحامض البولي 0

كان الغرض من هذه الدراسة هو تحليل مكونات الحساوي البولية والتي تشمل الكالسيوم والاكسالات الفوسفات الكربونات الحامض البولي الماغنسيوم سستين وكلسترول 0 وقد وجد أن 90 % من الحساوي تحتوي علي الكالسيوم والاكسالات و أن 82.5% من الحساوي تحتوي على الحامض البولي و 45% على الماغنسيوم و 7 و 5 % على الفوسفات بينما لا يوجد كلسترول او كربونات او سستين ضمن مكونات الحساوي البولية التي تم تحليلها 0

وجد أن الحساوي البولية تتفاوت في أحجامها حيث أن معظم الحساوي التي أزيلت من الكلية كانت صغيرة الحجم (قطرها اقل من 1 سم) والتي أزيلت من الحالب كانت صغيرة ومتوسطة الحجم (قطرها 1-2 سم) بينما التي أزيلت من المثانة البولية كانت معظمها كبيرة الحجم (قطرها اكبر من 2 سم) 0

عند قياس مستوي الكالسيوم وملح الحامض البول في الدم عند هؤلاء المرضى وجد أنه في المدى الطبيعي حيث كان المستوي الوسطى فيها (4 ± 9.6 , و 0.2 ± 5.8 مليجرام ديسلتر) علي التوالي 0

خلصت هذه الدراسة إلى أن الحساوي البولية تحتوي غالباً على الكالسيوم والاكسالات والحامض البولي في وجود مستوي طبيعي للكالسيوم وملح الحامض البولي في الدم وأنها أكثر شيوعاً عند الرجال مقارنة بالنساء وأنها أكثر شيوعاً في مدينة الخرطوم مقارنة بام درمان والخرطوم بحري و أن غالبية الحساوي البولية نجدها في الفئة العمرية اقل من 20 عام.