

**Sudan University of Science and Technology**  
**College of Graduate Studies**

**Effect of Haemodialysis on the plasma  
Level of Potassium and Body Weight in  
Sudanese patients with Chronic Renal  
Failure**

تأثير الغسيل الدموي في مستوى البوتاسيوم في الدم ووزن  
الجسم عند المرضى السودانيين بالفشل الكلوي المزمن

**A thesis Submitted in partial Fulfillment for MSc Degree in  
Clinical Chemistry**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال الله تعالى

إِنَّ رَبَّكُمْ اللَّهُ الَّذِي خَلَقَ السَّمَاوَاتِ وَالْأَرْضَ  
فِي سِتَّةِ أَيَّامٍ ثُمَّ اسْتَوَىٰ عَلَى الْعَرْشِ يُدَبِّرُ  
الْأَمْرَ مَا مِنْ شَفِيعٍ إِلَّا مِنْ بَعْدِ إِذْنِهِ ذَلِكُمُ اللَّهُ  
رَبُّكُمْ فَاعْبُدُوهُ أَفَلَا تَذَكَّرُونَ

صدق الله العظيم

سورة يونس الآية 3

# **Dedication**

**To my parent, sister and brother**

**To all teachers and colleagues**

**Who have had positive**

**Impacts on my life**

**Hamida**

## **Acknowledgments**

**All and first thanks to almighty ALLAH. My special thanks are due to my supervisor Dr.Bader Eldien Hassan Alabid for his effort and patience.**

**My appreciations are also due to all patients from whom blood sample were collected.**

**Finally, I wish to express my great thanks to all people who helped me in this work.**

## **Abstract**

A cross-sectional study was conducted during the period between October 2010 to December 2010 to evaluate the level of plasma potassium and the body weight before and after dialysis among Sudanese patients with chronic renal failure in Khartoum state.

Eighty-Six patients participate on haemodialysis were selected for this study .two blood samples were collected from each patients before and after dialysis in heparin containers, plasma potassium level were measure using flame – photometer and body weight was recorded for each participant in kilograms.

The mean level of potassium after dialysis was significantly reduced ( $p=0.00$ ). Whereas the body weight was slightly reduced but this reduction is not significant.

The study showed no correlation between the pre dialysis plasma potassium level and body weight ( $r=0.00$ ).

In the present study the majority of haemodialysis patients have hypertension (45.3%), Diabetes Miletus (11.6%), Diabetes Miletus with hypertension (4.7%) and other etiology (38.4%)

From the result of this study, it concluded that haemodialysis significantly reduced the levels of plasma potassium whereas it slightly reduced the body weight.

## مستخلص الدراسة

أجريت هذه الدراسة المقطعية خلال الفترة من أكتوبر حتى ديسمبر 2010م حيث تمت مقارنة مستويات البوتاسيوم في بلازما الدم عند 86 من المرضى السودانيين المصابين بداء الفشل الكلوي المزمن قبل وبعد الغسيل وايضا مقارنة وزن الجسم .

كل المشاركين فى هذه الدراسة من مستشفى بن سينا التخصصى بولاية الخرطوم مستويات البوتاسيوم تمت قياسها بواسطة جهاز المضواء .

اظهرت الدراسة علاقة زو قوة معنوية بين مستوى البوتاسيوم قبل وبعد الغسيل لم تكن هناك ارتباط بين وزن الجسم قبل وبعد الغسيل .

اظهرت الدراسة ان اغلبية مرضى الفشل الكلوي يعانون من ارتفاع فى ضغط الدم 45.3% وسكرى بمعدل 11.6% وسكر وإرتفاع فى ضغط الدم بمعدل 4.7% واسباب اخرى مسببة للفشل الكلوي بمعدل 3804 .

من هذه الدراسة نلخص الآتى: الغسيل الدموي عند مرضى الفشل الكلوي المزمن يودى الى انخفاض مستوى البوتاسيوم فى بلازما الدم وايضا الى انخفاض طفيف فى وزن الجسم كما ان مستوى اليوتاسيوم ووزن الجسم لا يرتبطان ارتباط معنوي, ولكن هنالك علاقة زو قوة معنوية فى مستوى البوتاسيوم قبل وبعد الغسيل .

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## **Abbreviations**

<b>ADH</b>	Antidiuretic Hormone
<b>ARF</b>	Acute renal Failure
<b>CKD</b>	Chronic Kidney Disease
<b>CRF</b>	Chronic Renal Failure
<b>ESRD</b>	End Stage Renal Disease
<b>GFR</b>	Glomerular Filtration Rate
<b>SD</b>	Standard Deviation