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Acknowledgement

Firstly, I offer to my adoration to God who created me, gave me the strength and courage to complete my dissertation and gave me the opportunity to thank all those people through whom his grace was delivered to me.

No research is ever the outcome of single individual's efforts. This work is also no exception. It provides me immense pleasure to convey my gratitude to all those who directly or indirectly contributed to make this project successful.

Although it's not possible to name and thank them all individually, I must make special mention of some of the persons and acknowledge my sincere indebtedness to them.

I'm very glad to thank my supervisor Dr. Alnazier for his endless guidance, my thanks to my colleagues for their encouragement.

My thanks extended to my brothers, En. Issam and En. Rashad for his continuous advices and supporting and all the staff in Gezira hospital for renal diseases and surgery and the staff in Abu Aushar center for their helpful, collaboration and endless help during my research.

Dedication

For the soul of my parents

To my wife and my kids (Riham,
Mohamed, Mousab and Mokhlis) for their
patience

To my brothers, sisters, friends and
colleagues

For their encouragement and support

And every one helped me.

..

Abstract

Dialysis machines are artificial kidneys that perform some kidney functions for patients who have renal failure and they used to clean the blood and balance its constituents. The machine maintenance and calibration are extremely important in evaluation of adequacy of hemodialysis and in assessing dialysis session performance.

Patients under dialysis sometimes suffer from allergen and complain that the treatment is not effective. They always complain, so the study proposed to see whether these monitor are working properly or not, and what are the required for these monitors to work well.

The study was conducted on heamodialysis machines in Gezira State to evaluate the efficiency of the dialysis dose before and after calibration. Samples of ten machines were selected randomly from Gezira hospital for renal diseases and surgery and Abu Aushar dialysis center. Eight blood samples were taken from patients on twice – per – week dialysis regimens pre and post dialysis sessions before calibration and the same sample size were taken after calibration. The samples were analyzed for urea and the study compared the results post dialysis before and after calibration for the purposes of the research. The two major methods used for evaluation the adequacy of hemodialysis are URR and Kt/v. The minimum value for urea reduction ratio (URR) is 65% and 1.2 for Kt/v.

Data was analyzed using the statistical analysis (SPSS-15) and (Microsoft Excel 2007), and the analysis results showed that there is an improvement in the dialysis outcome after calibration comparing with the minimum values of URR (65%) and Kt/v (1.2). But statistically, there was no significant different before and after calibration in the dialysis dose.

الملخص

تستخدم ماكينات غسيل الكلى لعمليات الإستصفاء الدموي وموازنة السوائل لمرضى الفشل الكلوي. إن صيانة ومعايرة هذه الماكينات مهمة لتقييم الكفاءة.

بعض المرضى الذين يخضعون لعملية الإستصفاء الدموي يشكون من الحساسية وبعضهم ذهب بال قول إلى أن عملية الغسيل ليست فعالة فهم في حالة شكوى دائما.

الغرض من هذه الدراسة هو التحقق من كفاءة هذه الماكينات إن كانت تعمل بشكل صحيح أو لا وما هي المتطلبات التي تحتاجها لكي تعمل بصورة جيدة.

أجريت هذه الدراسة في الفترة من يناير حتى يوليو 2012 م في ولاية الجزيرة بمستشفى الجزيرة لأمراض وجراحة الكلى ومركز طرفي آخر , حيث أخذت عشرة ماكينات بصورة عشوائية لإجراء هذه الدراسة وتم أخذ عينات دم من المرضى قيد الغسيل قبل وبعد إجراء عمليات المعايرة لمحورات الترشيح العالي والضغط ومحورات الموصلية .قيست معملياً مادة البولينا في تلك العينات قبل وبعد عملية الغسيل .

تم تحليل البيانات باستخدام برنامجي (SPSS & Excel) وأظهرت النتائج تحسناً في كفاءة الماكينات بعد المعايرة مقارنة بالقيم الدنيا للبولينا والتي تبلغ 65% , وجرعة الغسيل البالغة 1.2 . ولكن من ناحية إحصائية لم تظهر النتائج أي فرق في الجرعة ومعدل إستخلاص البولينا قبل وبعد المعايرة.