

تأثير استخدام تقنية الترشيح الدموي على كفاءة الغسيل, فقر الدم, صحة العظام والتغذية بمنطقة مكة المكرمة

الطالبة / مشاعل الشمراني

بإشراف البروفيسور بهاء أبالخيل / البروفيسور إيمان رمضان

موضوع الدراسة:

يعاني ١٩٦٥٩ مريض من الإصابة بمرض الفشل الكلوي المزمن, بمعدل ٧١٨ حالة جديدة سنوياً, تتوفر الخدمة العلاجية لهم من خلال ٢٧١ مركز غسيل كلوي بجميع أنحاء المملكة, حيث يتم خدمة ٣٣٪ من المرضى في مراكز الشركات الخارجية المتعاقد مع وزارة الصحة والتي تتكون من ٥٥ مركز.

تعتمد عملية تنقية الترشيح الدموي على خاصيتي الانتشار والحمل للتخلص من المركبات السامة بمختلف أحجامها معتمدة بذلك على الضغط العالي الناجم من الضخ العالي للمياه النقية داخل جهاز المديال (بمعدل ٣٠ لتر بالجلسة الواحدة), وهذا ما زاد هذه التقنية أهمية أكثر من تقنية الديليزة الدموية.

تم اقتراح استخدام هذه التقنية في المملكة لجميع المرضى من قبل د. كركر في سنة ٢٠١٢ م.

أهداف الدراسة:

- مقارنة كفاءة الغسيل, فقر الدم, صحة العظام والتغذية بين مرضى الديليزة الدموية ومرضى الترشيح الدموي بعد ضبط المتغيرات الأخرى.
- مقارنة نتائج المجموعتين بالمعايير العالمية بعد ضبط المتغيرات الأخرى.

منهج الدراسة:

تم استخدام التصميم الشبه تجريبي بوجود مجموعة ضابطة غير متكافئة, تم تقسيم ٣٦٦ مريض فيها إلى مجموعتين. الأولى تتلقى العلاج باستخدام الغسيل الدموي (٢٥٨ حالة) والثانية تتلقى العلاج عن طريق الترشيح الدموي (١٠٨ حالة).

النتائج:

أثبتت تقنية الترشيح الدموي في هذه الدراسة تفوقها على تقنية الديليزة الدموية من ناحية كفاءة الغسيل, فقر الدم, صحة العظام, والتغذية,

التوصيات:

استبدال تقنية الديليزة الدموية بتقنية الترشيح الدموي للحصول على أفضل النتائج الإكلينيكية.

Effect of Hemodiafiltration on dialysis adequacy, Anemia, Bone, and nutritional status in Makkah region.

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- **Background**

End stage renal disease affected 19,659 patients with 718 an average Net annual increase, a 271 centers all over the kingdom accommodating 18,270 hemodialysis patients, 33% of those patient's receiving dialysis services by the outsourcing centers (55 centers).

Hemodiafiltration is a type of hemodialysis modality that uses diffusion and convection in order to clear the body from uremic toxins with different molecular size. It's first mention in a clinical trial done by Handerson lee at 1975, which ended with a significant result about large solute clearance⁽¹²⁾. This technology works by applying a high pressure using a large amount of ultrapure water to create a high pressure inside the dialyzer chamber (up to 30 liters in each session). The applied pressure will force remaining small, medium and large molecules to pass out the blood., that what it gives hemodiafiltration its superiority over high flux hemodialysis.

In 2012 Karkar A et. al. recommended the use of hemodiafiltration in Saudi Arabia dialysis settings for better outcome⁽¹⁴⁾.

- **Objectives:**

Comparing dialysis adequacy, bone health, Anemia management and nutrition between high flux group and hemodiafiltration group controlling for other determinant variables.

- Comparing the clinical outcomes of both study groups with the international guidelines of clinical outcomes controlling for other determinants variables such as: age, sex, period of dialysis, comorbidities, and body mass index.

- **Methods**

A quasi-nonexperimental design (Pretest posttest non-equivalent control group) was used; a total of 366 participants met the inclusion criteria. Included participants divided into two groups based on their treatment modality, cases: included 108 patients (29.51%) who receive hemodiafiltration technology, Controls: included 258 patients (70.49%) on High flux hemodialysis.

- **Results**

Among the subjects, 176 were male and 189 were female. The mean age was 55.41 ± 15.11 , hemodiafiltration participants with a mean Kt/V of 1.84 has better survival rates. Also, Hemodiafiltration successfully managed anemia by improving and maintaining patients' hemoglobin levels and keeping transferrin saturation within normal levels (HB= 11.13 and 11.14, Tsat= 30.17-31.67), while high flux led to decreased both levels (HB=11.14 to 10.91, Tsat= 29.43-30.69). In regard to bone health, a clear reduction in the serum phosphorus level was shown in favor to hemodiafiltration (Po4=5.17-4.67), serum calcium level was higher in the hemodiafiltration group in the present study but was not significant enough to empower the findings (Ca=8.68-11.13). Nutritional status was maintained in both groups and the serum albumin level increased with the use of hemodiafiltration (Alb=39.45-40.24).

Conclusion

Hemodiafiltration affected the Saudi population differently, the nature of different society can have a true effect in this variation about the Saudi population and others, lifestyle also such as type of food, working out, quality of drinking water may affect this result in addition to the level of education, genetics and race.

Finally, hemodiafiltration Improved patient's clinical outcomes and met the international guidelines. More prospective studies are needed to identify the true effect of hemodiafiltration in decreasing the need for erythropoietin agents, Phosphorus binder medication, Human albumin administration during dialysis sessions and calcium medication in order to decrease treatment cost. Further studies need to evaluate B2-microglobulin clearance after the use of this modality for a long period, and to study the rate of infection and hospitalization related to the side effects of hemodiafiltration use. Implement the use of hemodiafiltration widely in Saudi Arabia and educate health care workers about the use and the benefit of this modality. Change NPCR calculation to be calculated as a three- or six-months average in clinical practice. Conduct a survey every six months to count and re-evaluate the beneficiaries of this modality based on their age, gender and their comorbidity index.