

***The Role of Color Doppler Ultrasonography in
Evaluation of
Arteriovenous Fistulae in Haemodialysis***

Essay

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INTRODUCTION

Maintenance of life in patients without kidney function is a remarkable achievement of modern medicine. When conservative management of end-stage renal disease is inadequate: hemodialysis, peritoneal dialysis and kidney transplantation are alternatives. (Meyer and Hostetter, 2007).

Performance of a successful hemodialysis procedure requires a functional vascular access. Hemodialysis vascular access requires repetitive reliable access to the circulation. (Watnick, 2005).

This access to the circulation should meet three criteria: First, it should be suitable for repetitive circulatory access. Second, it should allow for a blood flow suitable to conduct high-efficiency dialysis. Third, the complications rate should be minimal. (Chaudhury et al., 2006).

Currently, the main forms of hemodialysis vascular access include: catheter access and Arteriovenous accesses which are further classified into native arteriovenous

fistulas (AVFs) or arteriovenous grafts (AVGs). (Schwab et al., 2001).

Native arteriovenous fistulas have superior longevity and fewer complications and are associated with the lowest mortality and costs among all types of dialysis access. (Stein and Wild, 2002).

Before fistula creation, preoperative evaluation is a must and physical examination was the traditional evaluation method performed prior to hemodialysis access placement; but palpation and inspection are difficult in obese arms and vessels that are visible throughout their entire course are few. (Vazquez, 2009).

Doppler ultrasound has established itself in recent years as the procedure of the first choice in evaluation of hemodialysis access problems. (Weber, 2007).

Doppler ultrasonography has the ability to evaluate anatomical structure through B-mode gray scale imaging and blood flow physiology through Doppler ultrasound. (El-Gabaly et al., 2002)

AIM OF THE WORK

The aim of this study is to evaluate the role and usefulness of Doppler sonography in evaluation of hemodialysis access through assessment of the patency and suitability of the arteries and veins of the upper limb before surgery and detection of complications of hemodialysis arterio-venous fistula after its surgical creation.

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الملخص العربي

المقدمة:

لقد حقق الطب حديثاً إنجازاً ملحوظاً بالحفاظ علي حياة مرضى القصور الكلويّ المزمن، فعندما يصبح العلاج التحفظي لهؤلاء المرضى دونما طائل فإن الاستصفاء (الدموي و البريتوني) أو زراعة الكلي هما البديلين. و كي يتم الاستصفاء الدموي بنجاح فلا بد من توافر مدخل دمويّ فعّال وذلك عن طريق اجتماع ثلاثة معايير هي : أولاً ، ينبغي أن يكون مناسباً لتكرار عملية مرور الدم خلال جهاز الاستصفاء الدموي . ثانياً ، ينبغي أن يسمح لتدفق الدم بمعدل مناسب لإجراء الاستصفاء الدمويّ بكفاءة عالية. ثالثاً ، ينبغي أن تكون نسبة المضاعفات المتوقع حدوثها بعد إنشاء ذلك المدخل الدموي ضئيلة جداً. و حالياً يوجد نوعين أساسيين من المداخل الدمويّة : اتصال الشريان بالوريد (إما عن طريق الوصلة الشريانية الوريدية أو باستخدام الرقعة الشريانية الوريدية) والقسطرة المركزية الوريدية. و تعد الطريقة الأولى هي الطريقة المثلي لإنشاء مدخل دموي نظراً لقلّة حدوث المضاعفات كالعدي المرتبطة بالقسطرة المركزية الوريدية وارتفاع نسبة التجلطات بالأوردة المركزية و كذلك ضيق ذات الأوردة. وقد كان الفحص الإكلينيكي هو الوسيلة التقليدية للتقييم قبل إجراء العملية الجراحية لعمل الوصلة الشريانية الوريدية ، لكن السمّة التي يعاني منها بعض المرضى أو عدم القدرة علي تتبع الأوردة إكلينيكيّا كانتا من أهمّ العوائق التي تقف حائلاً دون إتمام العملية بنجاح مما أدّى إلي الحاجة إلي استخدام وسيلة أخرى للتشخيص. و من هنا جاءت أهمية الموجات فوق الصوتيّة بالدوبلر لتقييم الوصلة الشريانية الوريدية و ذلك عن طريق : التقييم ما قبل وما بعد إجراء الجراحة.

الهدف من البحث:

تقييم دور الموجات فوق الصوتيّة بالدوبلر في تخطيط و تقييم عمل الوصلة الشريانية الوريدية للاستصفاء الدموي في مرضى القصور الكلويّ المزمن وذلك قبل و بعد اجراء عملية الوصلة الشريانية الوريدية.

دور الموجات الصوتية والدوبلر في تقييم الوصلة الشريانية الوريدية في مرضي الفشل الكلوي

رسالة

توطئه للحصول على درجة الماجستير في
الاشعة التشخيصية

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