Effectiveness of multidisciplinary care team and new training pathway for chronic Haemodialysis patients with newly created arteriovenous access in a single center.

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Keywords:
HD: Haemodialysis
PD: Peritoneal Dialysis
AVF: Arteriovenous Fistula
AVG: Arteriovenous Graft
CKD: Chronic Kidney Disease
RNC: Renal Nurse Clinic

Introduction
A good functioning arteriovenous (AV) access (fistula or graft) delivering a prime blood flow rate is crucial to ensure optimal Haemodialysis (HD) dialysis adequacy. Additionally, this would allow the early removal of temporary haemocatheter, avoiding all its associated hassles. However, there has been a lack of universally adopted clinical pathway to provide continuous education, training and appropriate care of these precious life lines once created. We have thus consolidated a care plan, in the form of a training pathway that involved both nephrologists and renal nurses in our new multidisciplinary clinic for AV access care, and included clinical follow-ups, RNC education sessions, Doppler flow studies, starting on day 2 post-operation of the access creation.

Objectives
We started our new training pathway in Oct 2013 that served all HD patients with newly created AV access since. The current research is to conduct a comparative study of chronic HD patients with newly created arteriovenous access with or without the help of the multidisciplinary clinic, looking at their success rate of using the access, timing of the access maturation, and the comparison of their knowledge of access care. Patient satisfaction about the new training pathway would also be noted.
**Methodology**
This was a comparative study looking at 2 groups of chronic HD patients, those who had 32 AV access created between 1 October 2013 and 30 September 2014 (study group, n = 32, in 29 patients), and 52 created from 1 October 2011 to 30 September 2013 (control group, n = 52, in 47 patients), in KWH. The clinical records were reviewed retrospectively for retrieval of relevant data. Among them, there were 19 and 37 in the study and control groups respectively, that had the access created when they were already receiving HD. On the other hand, there were 13 in the study group and 15 in the controls who had the access created electively, without the immediate need to start HD. For those patients already on regular HD, the time to maturation was defined as the time interval between the creation operation and first successful use of the vascular access, and this was compared between the two groups. In addition, we compared their knowledge and awareness in the self-care for the vascular access by inviting patients in both study and control groups to answer a 19-question questionnaire. For the study group, a patient satisfaction survey on this new training pathway and multidisciplinary clinic follow-up were also performed.

**Result**
The median time from creation operation to first successful use was 51±11 days vs 86±11 days (P = 0.033), in the study and control groups respectively, with a substantial reduction in the waiting time of 35 days for a newly created AV access to be ready for use. For the questionnaire, while there was no significant difference in overall scoring between the two groups, there was significant improvement in patient knowledge and awareness in 3 particular aspects including avoiding carrying heavy objects, hemostasis technique and vascular access strengthening exercise in the study group. Conclusions A multidisciplinary care team and new training pathway for our chronic HD patients with newly created AV access has thus led to faster access maturation, a higher success rate of using the access allowing for identification of the optimal puncture sites, and the acquaintance of adequate knowledge of their access care. Excellent patient satisfaction on this new training pathway was also noted.