



Service Priorities and Programmes
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**Ultrasound-guided cannulation of difficult vascular access by dialysis nurses:
Nurse and patient perspectives**

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Introduction

Cannulation of arterio-venous fistula (AVF) for haemodialysis (HD) is traditionally performed by blind method. With the aging population and the epidemic of diabetes, there is an increased number of AVF that are difficult to cannulate resulting in repeated cannulation failure by using the traditional blind method. To improve the quality of care, we have introduced ultrasound for cannulation of difficult AVF since 2013, aiming at increasing the cannulation successful rate and minimizing trauma caused by multiple attempt of cannulation. The program was evaluated 4 years after the implementation.

Objectives

The program objectives: (1) To increase the successful rate of cannulation of difficult AVF; (2) To reduce trauma caused to AVF; (3) To decrease the pain and stress created due to cannulation.

Methodology

To enable the implementation of ultrasound-guided cannulation, training was arranged for a renal nurse on the use of ultrasound on blood vessels by attending vascular ultrasound workshop. The other nurses were then trained by “train the trainer program” and “on-the-job training”. Ultrasound was used by trained nurses on cannulation of difficult AVF. The program was evaluated by nurse and patient survey on their opinions on the program. Score was made by a 100-point scale.

Result

There were 21(91%) nurses who had received training and used ultrasound for cannulation. The nurse survey shows 95% of the nurses agreed that using ultrasound can increase the cannulation successful rate.

There were 39 (44%) chronic HD patients (M:F =13:26, age range:35 -73, mean: 57.8 ±10.4) who had difficult AVF (deep; with small caliber; newly created; deteriorating; after surgical intervention and with abnormalities such as stricture and

pseudo-aneurysm) requiring use of ultrasound for cannulation. The patient survey results show: 59% (23) of the patients agreed that ultrasound helped in reducing pain during cannulation; 69% (27) agreed that it reduced their cannulation phobia; 79% (31) agreed that it reduced the anxiety of failed cannulation; 82% (32) agreed that it helped in reducing cannulation complications and all patients agreed that it increased the cannulation successful rate with the mean score of 95. All patients were satisfied with the implementation of ultrasound with the mean score of 94. The patients' rating for the nurses' competency on use of ultrasound was 87.

Ultrasound-guided cannulation of difficult vascular access for HD gained widespread acceptance by nurses and patients with positive feedback on the cannulation successful rate. From the patients' perspective, it also reduced complications, pain, fear and anxiety associated with cannulation.