

## Use of vascular access for haemodialysis patients: a retrospective analysis of indications and outcomes in 12 months

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### Introduction:

In recent years, there is an increasing trend in using central venous catheters (CVCs) rather than arteriovenous fistula (AVFs) at the start of haemodialysis (HD) worldwide. Studies reported there was a large variation in the use of different types of vascular access, and a relative paucity in evidence to explain the reducing trend in using AVFs.

In this report, we analysed the use of new vascular access for HD patients in our local trust for the 12 months' period from September, 2018 to September, 2019. We aimed (i) to assess the types of new vascular access for HD; (ii) to determine the appropriateness of vascular access use by analysing the clinical indications; (iii) to assess the outcomes of patients with the use of different types of vascular access.

### Methods:

Three clinicians and one vascular specialist nurse collected data independently on the vascular access use for HD patients dated from 01/09/2018 to 01/09/2019. Data were sourced from vascular access nurses' records (part of renal registry data), Vita-data, discharge summaries and paper medical notes. Details were collected on the age of the patients, the type of vascular access, the indications of its use, and the outcomes/complications of each patient.

### Results:

There was a total of 156 new vascular access formed in the 12 months' period, of which 117 were incident HD (44 with known established ESRD). The types of vascular access are divided between: 66 (42%) femoral CVC, 67 (43%) right internal jugular venous (IJV) tunnelled catheter, 3 (2%) femoral Tesio tunnelled catheter, and 20 (13%) AVFs.

The indications and outcomes for each type of vascular access demonstrated that the majorities of femoral CVCs were for crash landing AKIs (29/66: 44%) and the interim access due to blocked AVF (37/66: 56%), which was the result of a relatively long waiting time for fistuloplasty to be carried out in our local trust. The average waiting time for a routine referral was 14 days and an urgent referral 2 days, with the same day fistula-plasty a rare possibility. Majorities of the crash-landing AKI patients (18/29:62%) had a full recovery of renal function and only 1 died later with hospital acquired pneumonia.

Of those with RIJ tunnelled catheter, the main indications were either awaiting AVF formation /maturation (27/67:40%) or unexpected fast deterioration of CKD patients (24/67:36%). These patients were relatively older in age (with an average of 75 years).

### Discussion:

Our results demonstrated that despite of appropriate clinical indications of the use of each vascular access, there is an urgent need to expand the vascular interventional service in our local trust to shorten the waiting time for fistula-plasty, and AVF formation. This serves to avoid the unnecessary interim use of femoral CVCs, which impacts negatively both on patients' health and the trust' economy, and also increase the rate of AVF use for incident HD patients with established ESRD, which stands at a much lower rate in our unit (20/44: 45%) than it is currently recommended by the renal association (60%).