Dealing with difficult haemodialysis catheter access

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For the successful delivery of haemodialysis (HD) treatment, the presence of a reliable and recurrent access to the circulation is of utmost importance. This is usually provided by either a native arterio-venous fistula or by a prosthetic bridge graft. However not all patients are suitable for fistula creation and others might present as unexpected emergency. In these situations, HD catheters are likely to be only options. The use of HD catheters for maintenance HD is a worldwide problem and is more challenging in Asia with the high incidence of diabetes mellitus, large population of end stage renal failure (ESRF) on maintenance dialysis and patients remaining on HD for prolonged period of time due to the low kidney transplant rate.

Managing HD catheters in ESRF patients can be a challenge during catheter insertion, handling frequent catheter malfunction and dealing with recurrent catheter related blood stream infection.

1. Dealing with difficult catheter insertion
   a. Difficult venipuncture
      Difficult venipuncture is not uncommon among diabetes, elderly and those that have multiple previous catheter insertions. The use of realtime ultrasonography and the use of other less conventional sites maybe the solution to this problem.
   b. Difficult placement of guide wire
      Correct placement of guide wire can occasionally be a challenge when using the standard guide wire that accompanied the HD catheter. The availability of more hydrophilic guide wire may avoid this issue.
   c. Difficult placement of HD catheter
      Difficulty in placement of HD catheter commonly occur in the presence of central vein stenosis and when using aberrant veins. The use of hybrid technique and balloon dilatation may resolve this difficulty

2. Dealing with frequent catheter malfunction
   Frequent catheter malfunction are commonly due to kinking of the catheter, inappropriate placement of the catheter tip and inadequate anticoagulation. Hence, in patients with frequent catheter malfunction, attention should be place on correct catheter insertion techniques, correct selection of HD catheter and appropriate care of the HD catheter.

3. Dealing with recurrent catheter related blood stream infection (CRBSI)
   Certain patients are more prone to CRBSI despite implementing universal precaution and strict aseptic technique. In this situation, the use of antibiotic locking solutions, coated catheters and catheters with subcutaneous ports may be considered.

In conclusion, difficult HD catheters are expected to be more prevalence among Asian HD patients and expected to be a major challenge to the nephrology fraternity. In is important that healthcare providers caring for dialysis understand and able to dealing with HD patients with difficult HD catheters.