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Tips and pitfalls of tunneled HD catheter insertion

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According to latest Korean Dialysis Registry data, 6 % of dialysis patients are use tunneled catheter and 2% of patients are use temporary catheter for their vascular access. Recent report support and suggest that, tunneled cuffed hemodialysis catheters are more widely used for primary vascular access in patients with poor vascular state, elderly ESRD, severe underlying disease who are expected poor survival outcome. So the proper placement of tunneled cuffed catheter is very important for these patients in terms of dialysis adequacy, catheter related blood stream infection and eventually their survival. All these components are directly related with morbidity and mortality of the patients.

There are several conditions for ideal tunneled cuffed catheter. First catheter insertion procedure should be easy. Second, catheter functions such as high blood flow, low recirculation, should be good enough for delivering sufficient Kt/V, that is dialysis adequacy. Third the catheter itself should have property of bacterial resistance which means decrease in catheter related infection. Fourth, the catheter should have no blood clotting configuration which can cause chronic dialysis catheter dysfunction. Five the catheter should have biocompatibility, so there is no fibrin sheath formation around the catheter tip. But, there are no such ideal catheters in real world. However recently, the catheter tip design, catheter materials and tip cutting technology have advanced much better. So as a nephrology physician and especially interventionalist, catheter insertion is one of the important life saving procedure.

Sometimes catheter insertion procedures can cause lethal complications such as ventricular tachycardia, SVC perforation, tricuspid valve tear, cardiac tampon. So monitoring equipments like EKG monitor, pulsoximeter, ultrasonography must be prepared. Most important thing for the good catheter function is may be the positioning of catheter tip in RA. So the confirmation of tip positioning by fluoroscopy and testing for catheter function by aspiration syringe with negative pressures are tips for tunneled catheter insertion. Video demonstration may help your techniques of successful catheter insertion.