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To compare the safety and outcomes of ultrasound guided tunneled dialysis catheters insertions with or without flouroscopy

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Objectives: Imaging guided tunneled dialyses catheter insertion is better than traditional landmark method due to fewer complications. Ultrasound guided insertion is safe and preferred method as proven by previous studies. However, there is a paucity of data regarding comprehensive outcomes in USG guided insertion with and without fluoroscopy. Hence, our aim is to study and compare complications of ultrasound guided tunnelled catheter insertion with or without fluoroscopy assistance.

Methods: This is a single center randomised control study done in a tertiary hospital in North India. After screening 153 patients, 149 were enrolled, 87 were randomized into Ultrasound guided insertion without fluoroscopy (Group A), and 62 were randomized into Ultrasound guided insertion with fluoroscopy (Group B). All insertions were done in a dedicated procedure room by nephrologists with an experience of atleast 50 catheter insertions. Outcomes were analyzed at baseline and at 1-month follow-up. Infective, mechanical and thrombotic complications were compared in both groups and statistically analysed. The trial was registered in Clinical Trial Registry of India.

Results: All the attempts of tunneled dialysis catheter insertion in the right IJV were successful in both groups. At baseline assessment, the incidence of hematoma formation, Ease of procedure, number of attempts for successful catheter placement was not statistically significant in both groups. However, the procedure time was the only significant result in our study, which was less in the USG guided group with a significant p-value of 0.007. At one month follow up, no statistically significant results in infective, mechanical complications and thrombotic complications were observed in the groups.

Conclusions: Our study concluded that fluoroscopy has no additional advantage in reducing mechanical, infective, or thrombotic complications, and hence USG guided long tunnelled dialysis catheter insertion with fluoroscopy assistance is not superior to USG guided without fluoroscopy assistance.