

A Safe Technique With Outcomes Shown to be Equivalent to—or Even Better Than—Surgically Placed Peritoneal Dialysis Catheters^{1,2}

Several systematic reviews and meta-analyses showed that percutaneous PD catheter placement is a safer technique than surgical placement.^{1,2,4}



- Percutaneous catheter insertion can be performed at the bedside under local anesthesia, whereas surgical catheter insertion requires operation theater and general anesthesia.³
- Percutaneous catheter insertion has quicker recovery and ambulation and lesser delay in catheter insertion than other methods.¹

A meta-analysis compared percutaneous PD catheter insertion with surgical placement in 13 studies with a total of 2681 subjects from 1993 to 2012. A total of 1487 patients had PD catheters placed percutaneously, while 1194 patients had PD catheters placed surgically.¹

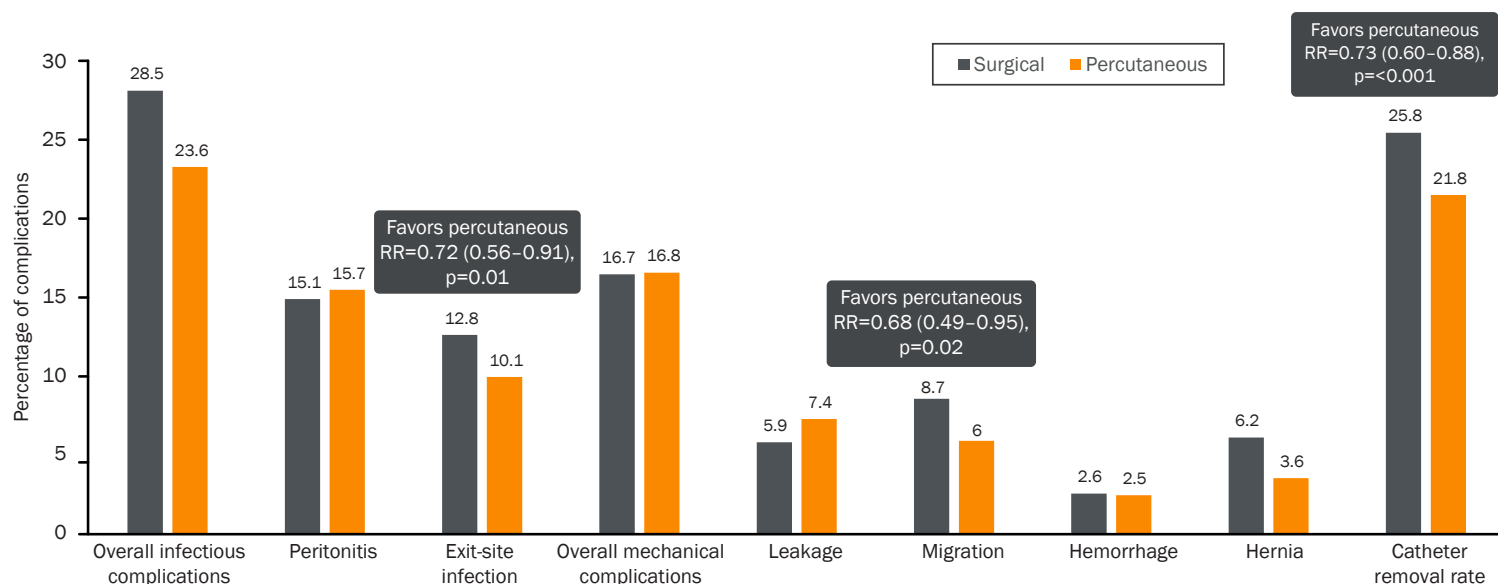
| Catheter-related problems | 95% (CI) | p- value |
|---------------------------|-----------------------------|---|
| Catheter dysfunction | OR=0.86 (0.57–1.29) | 0.46 |
| 1-year catheter survival | RR=0.81 (0.59–1.11) | 0.19 |
| Peritoneal fluid leak | OR=1.10 (0.58–2.09) | 0.77 |
| Peritonitis | IRR=0.77 (0.62–0.96) | 0.02 Favors percutaneous |

There is no statistically significant difference in catheter-related problems when inserted percutaneously or surgically. However, there is significantly lower incidence of peritonitis with percutaneous placement.¹

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Percutaneous catheter insertion may result in a lower incidence of infectious complications and has similar risks of mechanical complications when compared to surgical catheter insertion²

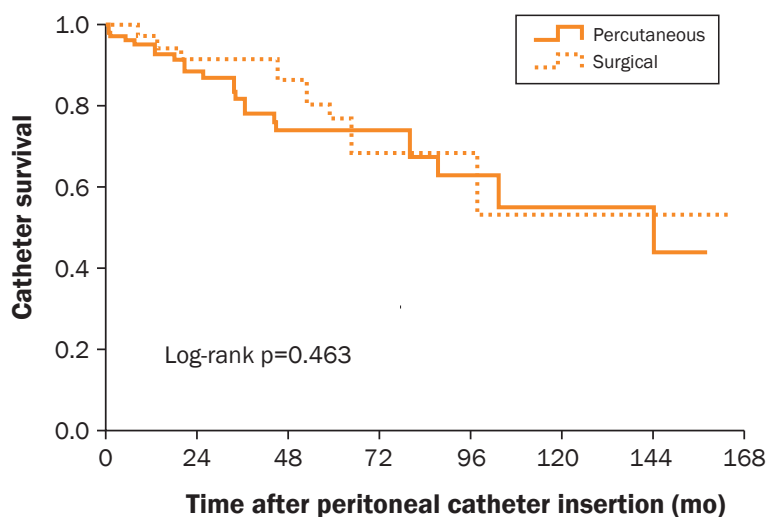


Adapted from: Esajian SM, et al. 2021

Percutaneous PDC placement is an overall safe procedure with comparable outcomes to the surgical placement. It may potentially lead to fewer infectious complications, such as exit-site infections, catheter migrations, and catheter removal rate.²

PDC: Peritoneal dialysis catheter.

Literature review also revealed no difference in the safety and efficacy between the percutaneous and surgical insertions in urgent-start PD⁴



Rate of catheter survival is comparable between patients who received percutaneous or surgical insertion in the first 168 months⁴

Percutaneous insertion is not inferior to surgical insertion for catheter survival (risk difference, -1.1 percent points; 95% CI, -13.3–11.1; non-inferiority margin, -15 percent points)⁴

Adapted from: Kim JH, et al. 2020

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| | Percutaneous group (n=103) | Surgical group (n=74) | p-value |
|-----------------------------------|----------------------------|-----------------------|---------|
| Infectious | | | |
| Peritonitis | 10 (9.7) | 4 (5.4) | 0.401 |
| Exit-site infection | 0 (0.0) | 1 (1.4) | 0.418 |
| Tunnel infection | 0 (0.0) | 0 (0.0) | |
| Mechanical | | | |
| Major leakage | 4 (3.9) | 1 (1.4) | 0.402 |
| Migration | 3 (2.9) | 1 (1.4) | 0.641 |
| Diminished outflow | 3 (2.9) | 0. (0.0) | 0.266 |
| Hemorrhage | 0 (0.0) | 1 (1.4) | 0.418 |
| Bowel perforation | 0 (0.0) | 0. (0.0) | |
| Hernia | 0 (0.0) | 1 (1.4) | 0.418 |
| Data are presented as number (%). | | | |

Adapted from: Kim JH, et al. 2020



The infectious (peritonitis, exit-site/tunnel infection) and mechanical complications in patients showed no significant differences within 90 days after receiving percutaneous and surgical catheter insertion.⁴

Summary



- No statistically significant difference in catheter-related problems when inserted percutaneously or surgically.¹
- Percutaneous catheter insertion has similar risks of mechanical complications as compared to surgical catheter insertion.²
- Percutaneous catheter insertion may result in a lower incidence of infectious complications, namely, peritonitis¹ and exit-site/tunnel infection,² than surgical catheter insertion.
- No difference in the safety and efficacy between percutaneous and surgical insertion in urgent-start PD.⁴

References: 1. Boujelbane L, Fu N, Chapla K, et al. Percutaneous versus surgical insertion of PD catheters in dialysis patients: A meta-analysis. *J Vasc Access*. 2015;16(6):498–505. 2. Esagian SM, Sideris GA, Bishawi M, et al. Surgical versus percutaneous catheter placement for peritoneal dialysis: An updated systematic review and meta-analysis. *J Nephrol*. 2021;34(5):1681–1696. 3. Peppelenbosch A, van Kuijk WH, Bouvy ND, et al. Peritoneal dialysis catheter placement technique and complications. *NDT Plus*. 2008;1(Suppl 4):iv23–iv28. 4. Kim JH, Kim MJ, Ye BM, et al. Percutaneous peritoneal dialysis catheter implantation with no break-in period: A viable option for patients requiring unplanned urgent-start peritoneal dialysis. *Kidney Res Clin Pract*. 2020;39(3):365–372.