

Publication Brief

Associations between hemodialysis access type and clinical outcomes: a systematic review

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BACKGROUND

Clinical practice guidelines recommend an arteriovenous fistula as the preferred vascular access for hemodialysis, but quantitative associations between vascular access type and various clinical outcomes remain controversial.

OBJECTIVE

To evaluate the associations between type of vascular access (arteriovenous fistula, arteriovenous graft, and central venous catheter) and risk for death, infection, and major cardiovascular events.

REVIEW

- MEDLINE, EMBASE, and article reference lists and extracted data describing study design, participants, vascular access type, clinical outcomes, and risk for bias were searched;
- 3965 citations identified: 67 (62 cohort studies comprising 586,337 participants) met inclusion criteria.

FINDINGS

- Catheters patients had higher risks for all-cause mortality (risk ratio=1.53, 95% CI=1.41-1.67), fatal infections (2.12, 1.79-2.52), and cardiovascular events (1.38, 1.24-1.54) compared with persons with fistulas;
- Catheters patients had higher risks for mortality (1.38, 1.25-1.52), fatal infections (1.49, 1.15-1.93), and cardiovascular events (1.26, 1.11-1.43) compared with persons with grafts;
- Individuals with grafts had increased all-cause mortality (1.18, 1.09-1.27) and fatal infection (1.36, 1.17-1.58) compared with persons with fistulas;
- There was no difference in the risk for cardiovascular events (1.07, 0.95-1.21) between patients with fistulas or grafts;
- The risk for bias, especially selection bias, was high.

CONCLUSION

Persons using catheters for hemodialysis seem to have the highest risks for death, infections, and cardiovascular events compared with other vascular access types, and patients with usable fistulas have the lowest risk.

Reference:

Ravani P, Palmer SC, Oliver MJ, Quinn RR, MacRae JM, Tai DJ, Pannu NI, Thomas C, Hemmelgarn BR, Craig JC, Manns B, Tonelli M, Strippoli GF, James MT. Associations between hemodialysis access type and clinical outcomes: a systematic review, " Am Soc Nephrol. 2013 Feb;24(3):465-73. <https://www.ncbi.nlm.nih.gov/pubmed/23431075> OPEN ACCESS (Transonic Reference # HD11497R)