

What are patients' experiences of cannulation for haemodialysis?: A qualitative systematic review

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Introduction: Cannulation is an essential procedure to be able to use arteriovenous (AV) access for haemodialysis. The Chronic Kidney Disease Patient Reported Experience Measure survey identifies that renal patients' experiences of cannulation for haemodialysis is sub-optimal, negatively affecting experiences of renal care. However, this phenomenon is poorly understood. Qualitative studies examining experiences of renal care often illuminate cannulation as an issue, but there is no existing systematic review on this subject.

Methods: A protocol was developed using ENTREQ and PRISMA-P as guidance, and registered on PROSPERO (CRD42019134583). Meta-aggregation was the synthesis methodology used, to allow a complete overview of current research findings and prevent reinterpretation of a poorly understood phenomenon. Two authors independently screened articles, assessed the quality of studies and extracted data. Non-English articles were translated. The meta-aggregation of findings were analysed at a group author meeting. The strength of synthesised findings are being assessed using CONQual, to complete the systematic review.

Results: The database search identified 246 articles, with 137 remaining after removal of duplicates. Following title and abstract screening, 71 articles remained and a further 20 were identified from reference lists. 90 articles underwent full text screening, with one dissertation in Portuguese pragmatically excluded. Following full text screening, 27 articles remained which described 26 different studies. Quality assessment indicated that the quality of studies varied from poor to excellent.

Three synthesised findings were produced, as follows:

- 1) Cannulation for haemodialysis is an unpleasant and abnormal procedure that is difficult for patients to experience. It causes pain, an abnormal appearance of the AV access, dependency and feelings of vulnerability.
- 2) The necessity of cannulation for haemodialysis was recognised by patients. Success was not just about a painless needle insertion, but also having an unproblematic haemodialysis session. This necessity for haemodialysis increased worry about multiple needle attempts and worry about success of the needle insertion.
- 3) Patients needed to survive an unpleasant, necessary and repetitive procedure to enable a life-sustaining treatment. They learned to tolerate the needle insertions even though they remained difficult. Feelings of safety made the cannulation easier to tolerate and were increased by trust and confidence in the cannulator. Exerting control helped patients manage this procedure and self-cannulation was one way they developed control. Some patients avoided needle insertions by either using a different form of dialysis or reducing the frequency of their haemodialysis.

Discussion: Cannulation for haemodialysis is a difficult procedure for haemodialysis patients to experience. This difficulty is exacerbated by the necessity of success to be able to receive haemodialysis. Patients' use various techniques to adapt and cope with this procedure, however it remains unpleasant and difficult.

The frequency of cannulation, alongside the link with a necessary life-sustaining treatment, makes cannulation for haemodialysis a unique procedure. It is important that renal healthcare professionals understand the impact of cannulation on haemodialysis patients. This systematic review aims to illuminate patients' experiences of cannulation for haemodialysis, increasing understanding and providing insight as to how healthcare professionals can promote a good cannulation experience.