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P175-Patency of tunnelled central venous catheters for haemodialysis access: a systematic review

Dr Sarah Blakey[1], Dr Anamika Adwaney[1], Dr Damien Ashby[1]
[1]*Imperial College NHS Trust, London, United Kingdom*

Introduction

Arteriovenous fistulae (AVF) are regarded as the access modality of choice in haemodialysis according to international guidelines; however, it is increasingly acknowledged that tunnelled dialysis catheters (TDCs) may be an appropriate choice for some patients. Little is known about the expected patency of TDCs, yet this information may be valuable in shared decision making between physicians and haemodialysis patients.

Methods

We performed a literature search of CENTRAL, MEDLINE and Embase from inception through to January 2019. We identified all studies that cited TDC patency in conventional access sites as an endpoint. Where studies compared two or more cohorts (for instance, different catheter types or insertion techniques), the catheter survival rate in each group was assessed independently. Studies were excluded from analysis where the overall TDC patency at a given time point was not stated. Overall TDC patency was compared, as well as patency weighted for study size. Equivalent 12-month patency was calculated by exponential decay. We looked at differences between studies from the USA and the rest of the world.

Results

46 studies were included in our analysis [1-46], of which 3 were prospective, randomised trials [28, 32, 41]. These featured 7667 TDC insertions between 1986 and 2017. TDC patency was reported at between one and 48 months (median six months). Only 10 (16%) studies reported outcomes beyond 12 months. Short- and long-term TDC patency varied considerably between studies, and within geographical locations. Overall adjusted line patency at 12 months ranged between 1.94% and 93.3%. After weighted data according to study size, estimated line patency was 79.2% at 12 months, 62.8% at 24 months and 49.7% at 36 months (Figure 1). Follow-up periods were shorter in the USA, with a median follow-up of 4 months. Equivalent 12-month patency was lower in the USA compared with other countries (Figure 2).

Discussion

Our systematic review demonstrates marked variation in TDC patency between study cohorts. This variation is not eliminated by correcting for geographical location, but there is a trend towards shorter TDC survival in USA cohorts. There is no clear explanation for the variability in TDC outcomes; however, it may be that differences in clinical practice are implicated, given similarities in patient demographics and TDC-related factors between cohorts.