Outcomes of Long-Term Central Venous Access Devices in Pulmonary Arterial Hypertension: A 10-Year Case Series

Carlos F Román-Ortega , Juan Gómez-Sandoval, Valeria Correa-Martinez, Javier Amaya-Nieto, Rafael Conde-Camacho

Background:

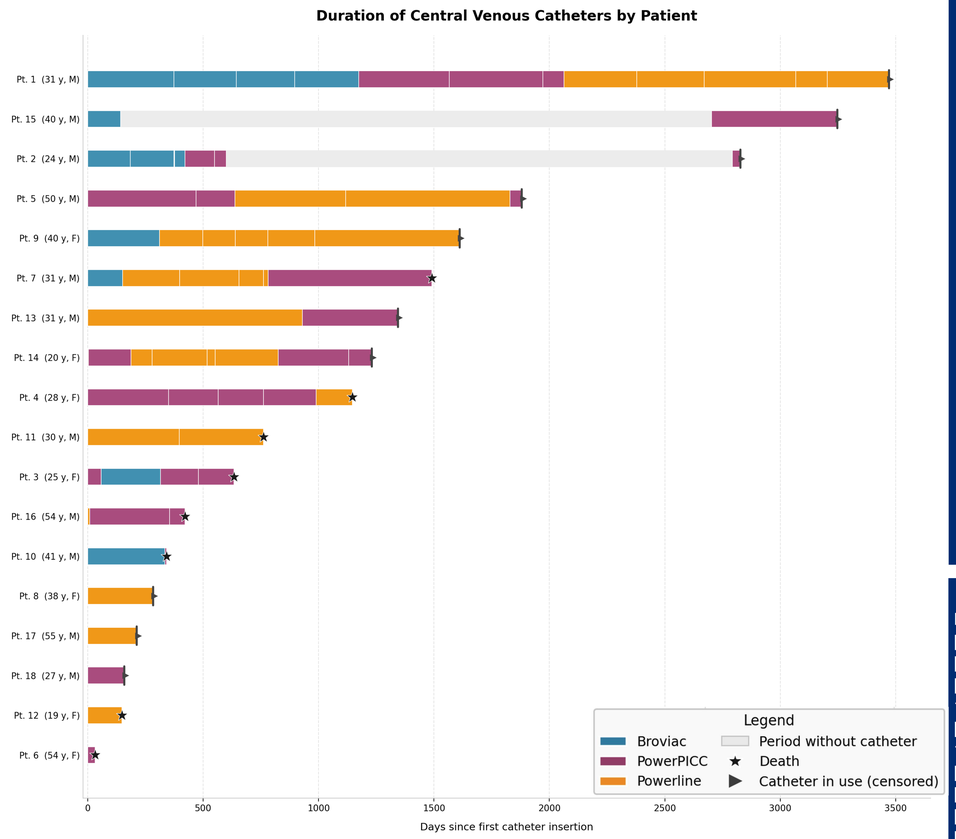
Pulmonary arterial hypertension (PAH) affects ~192,000 people globally, with high mortality [1]. Continuous intravenous epoprostenol via central venous access devices (CVADs) is the most effective strategy for pulmonary pressure reduction [2], but CVADs carry a ~30% complication rate including infection, thrombosis, and occlusion [4]. Approximately 80% of these patients live in low- and middle-income countries where evidence is scarce [3].

Methodology:

Retrospective case series (2016–2025) of 18 adult PAH patients requiring CVADs for continuous epoprostenol infusion, managed by a multidisciplinary team.

Results:

Median age was 31 years; 61% female. Most common comorbidity: heart failure (33%). All patients received anticoagulation; 67% had severe dyspnea (mMRC). Median catheter dwell time was 209 days (IQR 132–425). Over half were placed in the subclavian vein. Occlusion was the most frequent removal reason (~one-third of cases). Catheter-related infections occurred in 6 instances (4 patients, 22%). Thrombosis led to 2 removals. Immediate complications occurred in 17%. Overall mortality was 44% (n=8).



Conclusion:

Our median dwell time (209 days) was shorter than recent high-income countries (HICs) series (329 days) [4] but aligns with reports in other chronic conditions (202 days) [5]. The 22% infection rate falls within the reported spectrum for long-term intravenous prostacyclin therapy [6], and below the 30% bacteremia risk at 12 months described elsewhere [7]. Overall mortality (44%) mirrors long-term epoprostenol cohorts (39–45%) [8,9] and registry data (43.1%) [10]. Key limitations include small sample size, single-center retrospective design, and absence of a control group. However, results demonstrate that complex epoprostenol therapy can achieve complication rates comparable to HICs when embedded in a structured interdisciplinary program.

References:

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