

110 Two Meta-analyses on the Outcomes of Sequential Glaucoma Drainage Implantation vs. Cyclophotocoagulation



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Purpose/Relevance

To better understand the outcomes of second glaucoma drainage implant (GDI), we performed a meta-analysis of case-series studies that included patients with second GDI. We also performed a meta-analysis of studies that compared second GDI and cyclophotocoagulation (CPC).

Methods

Articles published up to June 1, 2018 were identified in Medline, Embase, and the Cochrane Controlled Trials Register. Patients who failed a GDI and received a second GDI were included. Pre-op and post-op IOP and number of glaucoma medications were compared using the Cochrane Center meta-analysis software. Change in IOP and change in the number of glaucoma medications were compared between those who underwent second GDI and those who underwent CPC. Success and failure time course was studied by aggregating Kaplan-Meier survival curves. Complication rates were aggregated.

Results

Eleven studies and 298 patients were included in the meta-analysis of second GDI. Post-op IOP was significantly lower than pre-op IOP by 10.9 mmHg (95% Confidence Interval (CI), 9.8 to 11.8; $p < 0.001$). Post-op number of medications was significantly fewer than pre-op by 1.1 (95% CI, 0.7 to 1.4; $p < 0.001$). Approximately 80% of patients qualified for various definitions of success that included goal IOP less than 21 in the first 1 to 3 years. More than 80% of patients required concurrent medical treatment to maintain IOP at acceptable levels in one year. Four studies and 88 second GDI patients and 70 CPC patients were included in the meta-analysis of second GDI vs CPC. When compared to CPC, there was no statistical difference in the change in IOP (1.6, 95% CI -2.2 to 5.4; $p = 0.13$) and in the reduction in the number of medications (-0.4, 95% CI -0.9 to 0.2; $p = 0.61$). There was a slower failure time course in the second GDI group compared to the CPC group. The incidence of corneal decompensation, the most common complication after second GDI, ranged between 1.6% to 15.9% per year.

Discussion

Second GDI significantly lowered IOP and reduced the number of medications. Most patients still required medications for adequate IOP control. Second GDI and CPC had similar reduction in IOP and medications, but second GDI might fail at a slower rate. When compared to the results of TVT study, second GDI in those with a failed GDI might fail earlier than first GDI in the general population.

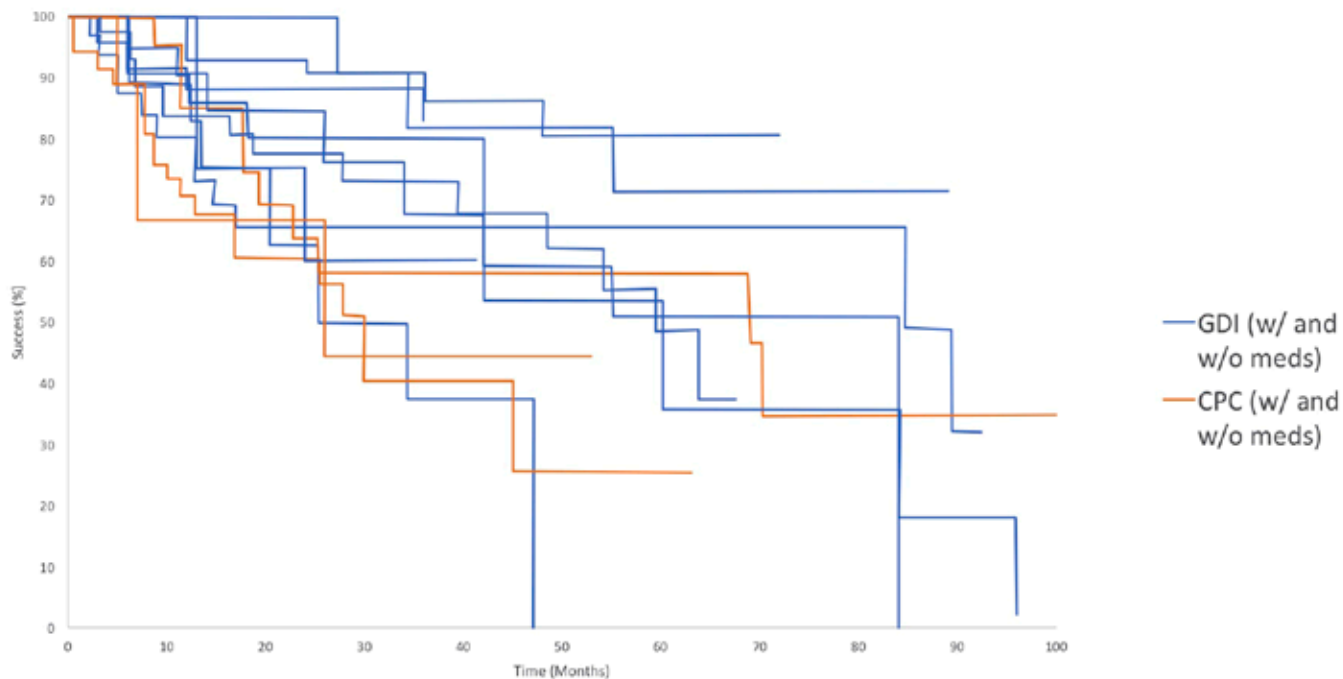


Figure 1. Aggregated Kaplan-Meier survival curves of patients with second glaucoma drainage implant (GDI; blue curves) and patients with cyclophotocoagulation (CPC) when success was defined by goal IOP less than 21.