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Causal Interventions to Reduce the Risk of Adverse Events in Stent Procedures

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The main medical intervention for coronary artery disease is stent implantation. In this context, we statistically estimate causal effects of alternate treatment regimes with the aim to lower the risk of adverse events as e.g. heart attacks. For this, a causal DAG is designed by domain experts and refined by a causal discovery algorithm. The estimated graph allows for appropriate confounder adjustment in the associated graphical model. We show how to non-parametrically compute average effects of causal interventions on continuous treatment variables and propose a heuristic to find explainable treatment regimes decreasing the risk of adverse events. The results give directions to improve upon and thus reduce the space of costly, future medical studies.

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