

The aim of this study is to demonstrate the efficacy of in-line filtration in reducing the incidence of postoperative phlebitis associated with peripheral short-term vascular access” Villa et al (2018).

Abstract:

BACKGROUND: Peripheral venous cannulation is an everyday practice of care for patients undergoing anesthesia and surgery. Particles infused with intravenous fluids (eg, plastic/glass/drugs particulate) contribute to the pathogenesis of peripheral phlebitis. The aim of this study is to demonstrate the efficacy of in-line filtration in reducing the incidence of postoperative phlebitis associated with peripheral short-term vascular access.

METHODS: In this controlled trial, 268 surgical patients were randomly assigned to in-line filtration and standard care (NCT03193827). The incidence of phlebitis (defined as visual infusion phlebitis score, ≥ 2) within 48 hours was compared between the 2 groups, as well as the onset and severity of phlebitis and the reasons for removal of the cannula. The lifespan of venous cannulae was compared for the in-line filter and no-filter groups through a Kaplan-Meier curve.

RESULTS: The incidence of phlebitis within 48 hours postoperatively was 2.2% and 26.9% (difference, 25% [95% confidence interval {CI}, 12%-36%]; odds ratio, 0.05 [0.01-0.15]), respectively, for the in-line filter and no-filter groups ($P < .001$). From 24 to 96 hours postoperatively, patients in the no-filter group had higher VIP scores than those in in-line filter group ($P < .001$). Venous cannulae in the in-line filter group exhibited prolonged lifespan compared to those in the no-filter group ($P = .01$). In particular, 64 (47.8%) of cannulae in the in-line filter group and 56 (41.8%) of those in the no-filter group were still in place at 96 hours postoperatively. At the same time point, patients with a VIP score < 3 were 100% in the in-line filter group and only 50% for the no-filter group. In-line filtration was a protective factor for postoperative phlebitis (hazard ratio, 0.05 [95% CI, 0.014-0.15]; $P < .0001$) and cannula removal (hazard ratio, 0.7 [95% CI, 0.52-0.96]; $P = .02$).

CONCLUSIONS: In-line filtration has a protective effect for postoperative phlebitis and prolongs cannula lifespan during peripheral venous cannulation in surgical patients.



Reference:

Villa, G., Chelazzi, C., Giua, R., Tofani, L., Zagli, G., Boninsegni, P., Pinelli, F., De Gaudio, A.R. and Romagnoli, S. (2018) In-Line Filtration Reduces Postoperative Venous Peripheral Phlebitis Associated With Cannulation: A Randomized Clinical Trial. *Anesthesia & Analgesia*. April 23rd. .

doi: 10.1213/ANE.0000000000003393.