

EDITORIAL COMMENT

# Do Inferior Vena Cava Filters Prevent Death From Pulmonary Embolism?\*



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For >4 decades, inferior vena cava (IVC) filters have been used in some fashion for the treatment or prevention of acute pulmonary embolism (PE) (1). The rationale is straightforward: trapping venous thrombi in transit without interrupting venous flow would prevent them from obstructing the pulmonary arteries, impeding gas exchange and increasing the demand on the right ventricle. IVC filters markedly reduce embolization of deep venous thrombi into the lungs acutely, even in patients who are receiving full-dose anticoagulation (2). The option is particularly intuitive if anticoagulants cannot be used in patients with venous thromboembolism (VTE), for what else is left to offer them? However, intuitively “good ideas” do not always hold up to clinical testing. In particular, clinical experience with IVC filters has not always supported their efficacy (3).

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In this issue of the *Journal*, Muriel et al. (4) report the results of an intriguing study aimed at determining the effect of IVC filter insertion on the mortality and morbidity of patients suffering from VTE in whom anticoagulation cannot be used. The authors used data from the RIETE (Registro Informatizado de la Enfermedad Tromboembólica) registry of VTE patients and studied those in whom IVC filters were placed because of severe risk of bleeding. Their outcomes were compared with a subset of patients from the same database who did not receive filters but were otherwise matched according to clinical factors that are associated with receiving IVC filters (e.g., bleeding, cancer, age). As expected, the control group was far more likely to undergo

anticoagulation therapy and experienced less recurrent VTE during follow-up than those with filters. Despite this finding, over the 30-day follow-up period, the IVC filter group had lower rates of PE-related deaths and a trend toward lower overall mortality. The authors concluded that, among VTE patients with contraindications to anticoagulation, IVC filter therapy may prevent PE-related deaths compared with withholding IVC filters.

Muriel et al. (4) are to be congratulated for providing good evidence to support the clinical intuition of placing IVC filters in patients with VTE who have high bleeding risks. It is unlikely that a confirmatory randomized trial of IVC filter placement will be performed on VTE patients who cannot receive anticoagulants, in the absence of an ethically sound alternative therapy. However, the study also demonstrated that IVC filter-treated patients from this registry experienced fewer PE-related deaths than clinically similar patients who underwent anticoagulation therapy, which suggests that filters offer clinical benefits that are discrete from those conferred by anticoagulation. Supportive of the latter idea is the recent report by Stein et al. (5) that IVC filter placement was associated with lower in-hospital mortality in pharmacologically treated patients with severe or unstable pulmonary emboli.

The observational data reported by Muriel et al. (4) and others have posed the question of whether IVC filters should complement the treatment of VTE patients who are at the highest immediate risk of death from PE, regardless of whether anticoagulation is administered. The stage seems set for clinical trials to settle this important controversy.

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