Considerable progress has been made in the last decade in understanding the natural history of “treated” venous thromboembolism (VTE). VTE occurs at a rate of 1/1000 in the general population and significantly increases with age, especially after age 60, with rates as high as 1/100. Duplex ultrasonography has largely replaced venography as the diagnostic test of choice for deep venous thrombosis (DVT), and spiral CT pulmonary angiography is rapidly replacing ventilation/perfusion lung scans as the diagnostic test of choice for pulmonary embolism (PE). Multiple agents are now available for the initial treatment of VTE including unfractionated heparin, low-molecular-weight heparin, and fondaparinux, and although the vitamin K antagonists remain the sole oral agents for the long-term treatment of VTE, new oral alternatives are on the horizon. As the result of large randomized controlled trials the secondary prevention of recurrent VTE has improved, with the duration of therapy now based on an understanding of the initial inciting event and the presence of ongoing risk factors. Patients with idiopathic DVT or persistent risk factors require anticoagulant therapy for a minimum of 6 months, and more likely, 12 months, with a cumulative risk of recurrence as high as 30% at 8 years. For patients with cancer and VTE, it has been shown that therapy with low-molecular-weight heparin for the first 3 to 6 months results in better outcomes than the outcomes of patients transitioned to warfarin early in the course of therapy. Unfortunately, the application of vena cava interruption has not undergone the same robust scrutiny as other therapeutic interventions, and consequently our knowledge of when and how to use inferior vena cava (IVC) interruption is limited. That is, until now.

Decousus et al in their long-term study in this issue of Circulation of the comparative outcomes of patients with DVT with or without PE who were treated initially with or without a vena cava filter, have done a great service. They have not only performed the first and only randomized controlled trial of such therapy but also by studying patients for up to 8 years, they have defined the long-term outcome of these patients. Their initial report in 1998 randomized 400 patients to receive either 1 of 4 types of IVC filters with concomitant anticoagulation or anticoagulation alone. At the 2-year follow-up, patients with filters had fewer PE but more DVTs compared with those with anticoagulation alone. Now, at 8 years, even though the total number of VTE events was similar in both groups (36.4% versus 35.4%, filter versus no filter, respectively), those with an IVC filter experienced a greater cumulative incidence of symptomatic DVT (35.7% versus 27.5%; HR 1.52, CI 1.02 to 2.27; \(P = 0.042\)), but significantly fewer symptomatic pulmonary emboli (6.2% versus 15.1%; HR 0.37, CI 0.17 to 0.79; \(P = 0.008\)). Of particular note is the finding that the rate of postthrombotic syndrome (70.3% versus 69.7%, HR 0.87; CI 0.66 to 1.13; \(P = 0.30\)), a complication that may be expected with greater frequency in patients with an IVC filter, was not different between groups. The conclusion from this long-term follow-up was similar to the original report; that is, with an IVC filter there is an equivalent trade-off of fewer PE at the cost of more DVTs, but also there is no difference in long-term morbidity (ie, postthrombotic syndrome) or mortality. Thus, the conclusion that “the systematic use of permanent vena cava filters in the general population with VTE is not recommended” seems justified.

What Decousus et al have established is that an IVC filter provides no additional net benefit to anticoagulation for the average patient with DVT with or without PE. These patients, however, are not the usual candidates for IVC filter placement. General indications support patients in whom anticoagulants cannot be used or those in whom anticoagulation has failed to prevent recurrent VTE. Some clinicians also advocate IVC filter placement for primary prophylaxis in patients considered to be at high risk for PE or as prophylaxis in patients with free-floating iliac thrombi. Although this study provides helpful information, it does not address the value of IVC filters versus alternative therapies in these situations in which it is commonly advocated.

Finally, the outcomes pertaining to the postthrombotic syndrome and death are not surprising, in that all patients in this study continued on oral anticoagulation for a minimum of 3 months, and 50% of patients were still taking a vitamin K antagonist at the end of 8 years. In addition, 24% of patients on entry to the study already had symptoms of the postthromb-
be of value, as suggested by Decousus et al.12

PE, however, filter placement along with anticoagulation may
subgroups with a predictably high rate of new or recurrent
in patients with DVT with or without PE. In selected
not significantly add protection in addition to anticoagulation
in patients with DVT with or without PE. In selected
whether a filter alone is better or worse than anticoagulation
against alternative means of treatment. We do not know
systematic way the traditional indications for filter use
removed with continuation of the anticoagulation.
3 to 6 months the filter can be
significant difference in recurrent DVT during this interval,
filter technology has advanced to the point that
Finally, filter technology has advanced to the point that
retrievable filters are available that can be removed several
weeks or up to several months after insertion.16
This new
temporary filter placement along with anticoagulation may be
the optimal intervention. After 3 to 6 months the filter can be
removed with continuation of the anticoagulation.

The long-term secondary prevention of venous thromboembolism is a story that evolves as new therapeutic agents or interventions enter the playing field. As such, some questions are answered, but new questions arise, and we still have much to learn.

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References

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