Massachusetts General Hospital, told HemOnc Today. “Despite the widespread use of these devices and the fact they make a lot of clinical sense — if you stop the clot, you’re going to save lives — that is not how the data pan out.”

**Effect of FDA warning**

The use of IVC filters decreased considerably following the FDA’s 2010 device safety warning.

Over a 5-year period, the FDA received reports about 921 filter-associated adverse events. They included device migration; filter fracture; embolization, or movement of the entire filter or fractured fragments to the heart or lungs; perforation of the IVC; and difficulty removing the device. These risks are associated with long-term use of retrievable IVC filters, which are intended for short-term use.

In their research letter, Reddy and colleagues reported a 29% decrease in the rate of IVC filter placements following the advisory — from 55.1 per 100,000 individuals in 2010 to 39.1 per 100,000 in 2014 (P < .001).

The advisory also contributed to increased litigation.

“A decade ago, people would say part of the reason for the increase in IVC filters was medical-legal,” Wun said. “If somebody had a PE after a surgery and the surgeon did not put one in, they would be faulted for not doing so. It’s somewhat the opposite now. Internet ads try to get people who have had IVC filters to take legal action.”

The FDA updated its safety communication in 2014, citing long-term risks for lower limb DVT and IVC occlusion. The agency again recommended that physicians and clinicians responsible for the ongoing care of patients with retrievable IVC filters consider removing them as soon as possible.

The FDA communication included data from Morales and colleagues — published in *Journal of Vascular Surgery: Venous and Lymphatic Disorders* — which identified 29 to 54 days after implementation as the appropriate timeframe for filter removal. ASH — as part of its participation in American Board of Internal Medicine Foundation’s Choosing Wisely initiative, a campaign intended to eliminate unnecessary procedures and reduce expenses without sacrificing quality care — recommended against routine use of IVC filters in patients with acute VTE. When IVC filters are used, ASH recommends retrievable instead of permanent filters, with removal as soon as the risk for PE has resolved or a patient can resume anticoagulation.

Despite this guidance and the FDA safety communication, research suggests filters still are used improperly. Although timely removal is key to reducing risks, data suggest they routinely are left in place.

“There is certainly a disconnect,” Lewandowski said. “Not every clinician understands IVC filters, and there are many physicians who still don’t know there is a difference between permanent and retrievable devices. There are also physicians who don’t understand these devices can and should be removed when no longer indicated.”

Sarowick and colleagues conducted a review of 679 patients implanted with retrievable filters. Results showed only 58 (8.5%) were successfully removed. Retrievial attempts failed in 13 of 71 patients (18.3% of attempts) because the filter embedded in the IVC (n = 8), protruded through a blood vessel (n = 3), had an abnormal position (n = 2) or had a clot (n = 1). Median retrieval time after placement was 122 days (range, 2-1,931 days).

An analysis by Abtahan and colleagues, published in 2014 in *American Journal of Medicine*, showed patients with cancer were less likely to have filters retrieved (28% vs. 42%; P < .001).

“These people are between a rock and a hard place,” said Weinberg, senior researcher on that study. “Unfortunately, patients with cancer already have a high risk for bleeding even on anticoagulation, and many times you can’t retrieve these filters.”

**POINT / COUNTER**

**Does an indication exist to place IVC filters in patients with cancer who can receive anticoagulation?**

**POINT**

Yes.

In most patients for whom anticoagulation is indicated and can be administered safely, the placement of an IVC filter is unnecessary and usually ill-advised. However, as with most of patient care, there are few certainties and it is incorrect to say there is never a reason to place a filter in a patient with cancer who can receive anticoagulation.

Even well-managed anticoagulation can fail; this risk may be three times greater among patients with cancer. Some patients have such poor cardiopulmonary reserve or performance status — because of chemotherapy, comorbidities or malnutrition — that any additional PE burden could be life threatening. These patients may benefit from the additional protection of an IVC filter, or the “belt-and-suspenders” strategy. Occasionally, patients develop thrombi that pose such lethal potential — such as a massive, free-floating IVC clot, the so-called widow-maker thrombus — that an extra layer of protection with caval filtration may be warranted despite the ability to anticoagulate. Although I do not routinely place filters during thrombectomy or thrombolysis, encountering such a clot may compel me to do so.

Finally, let us keep in mind that patients with cancer often require interruption of anticoagulation because of surgeries or interventional procedures. Placement of an IVC filter may be prudent in the perioperative or periprocedural setting among patients at very high risk for complications from VTE. Here, retrievable IVC filters — which are approved for permanent use, but designed to allow their removal — likely are a more appropriate option.

The landmark PREPIC trial showed that IVC filters confer no mortality benefit to patients who are concomitantly anticoagulated. So, uncommon and judicious — rather than routine — use of cava filters should be the rule for patients with cancer.

A critical point is that IVC filters are often only ephemerally indicated. It is incumbent upon the implanting physician to collaborate with the oncologist to monitor the patient and consider removing the retrievable filter once the indication for IVC filtration has been lost. Although no immutable rules exist in the care of patients with cancer, with careful consideration of the risk and benefits of IVC filters, the physician caring for the oncology patient can strike an optimal balance to prevent unnecessary procedural complications while protecting the patient from potentially lethal thromboembolic events.

**COUNTER**

No.

There is no doubt that this is a controversial topic. IVC filters are to be inserted if a patient has an acute venous thromboembolic event and there is an absolute contraindication to anticoagulation.

Unfortunately — especially for patients with cancer — they tend to be inserted all the time, even with just a diagnosis. Data from a California database showed 20% of patients with cancer who have a VTE and are admitted to a hospital get an IVC filter, and there really is no difference in the risk for DVT, PE and overall mortality among those patients. To push it further, when researchers looked at patients who might have had a contraindication — either they need to have a surgery soon or are experiencing bleeding — results showed no difference in OS in that specific subgroup.

The advantages of IVC filters are certainly not clear. There have never been any data, even from patients who do not have cancer, to support that putting a temporary or permanent IVC filter in patients who are receiving anticoagulation is of any benefit. The PREPIC and PREPIC 2 trials are very clear on that, and we know the filters can cause harm. In the absence of data showing they are helpful, there are now data showing that if the filters are left in long term — which they often are because, unfortunately, there is no reimbursement for taking them out — they often are associated with complications, which include misplacement and changing position of the IVC filter. More importantly, you are introducing a foreign body that disturbs the flow and is directly associated with an increased risk for DVT in patients with cancer, which may already have associated symptoms and comorbidities.

IVC filters should be avoided unless there is an absolute contraindication to anticoagulation in a setting of VTE. There also are no data on prevention in any setting for IVC filter insertion. The only indication is for a patient with an acute clot who cannot receive blood thinners. In that case, use an IVC filter, but only for as short a time as possible. Once the patient is back on anticoagulation, remove the filter to avoid complications.

**References:**


Marc Carrier, MD, MSc, FRCP(C), is an associate professor in the faculty of medicine in the clinical epidemiology program at Ottawa Hospital Research Institute. He can be reached at mcarrier@ohri.ca. Disclosure: Carrier reports he has no relevant financial disclosures.

Mark L. Lessne, MD, is a vascular and interventional specialist at Charlotte Radiology. He can be reached at mark.lessne@charlotteradiology.com. Disclosure: Lessne reports he has no relevant financial disclosures.