Cancers most associated with thrombosis

For example, the most common cancers associated with thrombosis are those of the breast, colon and lung, reflecting the prevalence of these malignancies in the general population. However, when adjusted for disease prevalence, the cancers most strongly associated with thrombotic complications are those of the pancreas, ovary and brain.⁵

Overall, it is estimated that 4-20% of patients with cancer experience venous thrombosis.⁶ There is a fivefold higher annual incidence of thrombosis among cancer patients, with about 1 in 1,000 in the general population and 1 in 200 in cancer patients.⁵

In fact, a large population-based, case-control Multiple Environmental and Genetic Assessment of risk factors for venous thrombosis (MEGA) study found that the overall risk of venous thrombosis was increased seven-fold in patients with a malignancy versus those without malignancy.⁷
This study examined 3,220 consecutive patients with a first deep venous thrombosis of the leg or pulmonary embolism, between 1999 and 2002, at six anticoagulation clinics in the Netherlands, and a control group of 2,131 participants (partners of the patients) reported via a questionnaire on acquired risk factors for venous thrombosis.

Recent cancer diagnosis

The investigators confirmed that the risk of developing thrombosis was highest when the diagnosis of cancer was made recently. In the first three months after diagnosis, the risk increased 53-fold. After two years, the relative risk had decreased considerably but was still higher than in people without cancer. Only after 15 years did the risk subside.

Cancer stage also played an important role, with the presence of distant metastases in solid tumours increasing the risk of venous thrombosis 58-fold compared with patients without cancer. Gastrointestinal, lung, and haematological cancer were the malignancies associated with a very high relative risk of venous thrombosis, which is similar to findings in other studies.

Another recent study also found high and varied rates of cancer-associated thrombosis. Spanning some 45 years of published research (1966 – 2011), this meta-analysis suggested that the annual incidence rate of VTE in patients with cancer is between 0.5% and 20%, depending on the cancer type, background risk, and time since diagnosis.

The researchers added that among average-risk cancer patients, the overall risk of VTE was 13 per 1,000 person-years, with the highest risk among patients with cancers of the pancreas, brain and lung. Among patients judged to be at high risk (due to metastatic disease or receipt of high-risk treatments), the risk of VTE was 68 per 1,000 person-years. The greatest risk was among patients with brain cancer (200 per 1,000 person-years).

Factors leading to rise in incidence of CAT

Venous thromboembolism and thrombotic complications are one of the most common causes of mortality in patients with cancer and, unfortunately, the incidence of cancer-associated thrombosis (CAT) is on the rise, according to large population-based studies. This upsurge has been attributed to the increasing age and cancer prevalence of our population, enhanced detection of incidental thrombosis, as well as the greater thrombogenicity of multi-agent chemotherapeutic regimens.

One CAT risk factor that has become increasingly recognised in recent years is the independent risk factor of chemotherapy. The annual incidence of VTE in patients receiving chemotherapy is estimated at 11%, with this risk climbing to 20% or higher depending on the type of drug or drugs being administered. In fact, almost one in ten deaths in patients receiving chemotherapy were as a result of thrombosis.
A recent study of a large unselected cohort of patients with cancer receiving chemotherapy as outpatients found that the overall incidence of VTE 3.5 months after starting chemotherapy was 7.3% (4.6% to 11.6% across cancer locations), rising to 13.5% at 12 months (9.8% to 21.3%). In addition, patients in whom VTE developed had a higher risk for major bleeding complications at 3.5 months and at 12 months (11.0% and 19.8% versus 3.8% and 9.6%, respectively).

Surgical procedures

While major surgery has long been known to be associated with an increased risk of VTE, cancer patients undergoing a surgical procedure have twice the risk of postoperative VTE and more than three times the risk of fatal PE than patients who undergo surgery for non-cancer conditions. In addition, this risk extends for a prolonged period after the procedure, with 40% of all VTE events in cancer patients in one study occurring later than 21 days from surgery.

Several population-based studies have examined the risk for diagnosis of cancer after a primary thromboembolic event, indicating that patients with unprovoked VTE have a higher risk of occult cancer. Based on an analysis of data from the National Health Service in Scotland, there was a 4.2-fold increased risk for being diagnosed with cancer within 1 to 6 months of diagnosis of VTE, and this risk remained high for at least two years after a first episode of idiopathic VTE.

A fifth of VTE cases occur in cancer patients and the risk of death is more than three times higher for cancer patients with VTE than for those without VTE. One large population-based cohort study found that just over a quarter of cancer patients did not survive past the first month following VTE diagnosis, and the overall one-year survival rate for VTE patients with cancer was only 42%.

References


