

## Heart disease and cancer: illnesses with much in common

Richard Béliveau

*Translated from Le Journal de Montréal, March 25th, 2019*

*According to a recent study, people who have experienced a cardiovascular event are at a much greater risk of receiving a diagnosis of cancer within the following months, suggesting a direct link between the development of these two diseases.*

Cancer and cardiovascular diseases are, respectively, the first and second-greatest causes of death in Canada, being themselves responsible for about 60% of all deaths annually.

These two diseases are generally considered as completely distinct phenomena: cancer is caused by an uncontrolled growth of cells, whereas the cardiovascular diseases, such as heart attacks and strokes, are caused by blockages to blood circulation in the heart and the brain.

Despite these very different clinical manifestations, the development of cancer or of cardiovascular diseases both involve one phenomenon: chronic inflammation. This has been particularly well shown by the results of the CANTOS study, where it was demonstrated that an antibody which neutralized the inflammatory protein interleukin-1b decreased the risks of both cardiovascular mortality and cancer<sup>1</sup>. This common dependence of cancer and cardiovascular diseases on chronic inflammation also explains why the group of lifestyle habits which favor the development of inflammatory conditions (smoking, sedentariness, poor diet, obesity and diabetes) are also common risk factors for both cancer and for cardiovascular diseases.

### COAGULATION PROBLEMS

Another link between cancer and cardiovascular diseases is evidenced by the very high risk for cancer patients to develop coagulation problems.

Historically, it was Professor Armand Trousseau (1801-1867) who observed for the first time that patients with cancer often exhibited venous thromboses (phlebitis), a hypercoagulability which is now known as Trousseau's syndrome. Studies have shown that cancer patients have a 7 times higher risk of developing this type of vein thrombosis, an increase which is particularly higher (53 times) during the first months which follow the diagnosis of cancer<sup>2</sup>.

These disorders of coagulation equally affect the arteries which feed the heart and the brain, and can thus significantly increase the risks of heart attacks and strokes.

For example, one study showed that during the six months that follow a cancer diagnosis, the risk of a myocardial infarct is tripled and that of a stroke is doubled, compared to the general population<sup>3</sup>.



Another study performed by the same group suggested that a cardiovascular event can even be a sign indicating the presence of an undiagnosed cancer. By analyzing the medical files of 374,331 patients aged 67 and over, the researchers observed a significant increase in arterial thromboses during the 150 days which preceded a diagnosis of cancer, an increase which is even greater during the last 30 days before diagnosis<sup>4</sup>.

In terms of prevention, the tight linkage between cancers and the cardiovascular diseases suggest that it is possible to “kill two birds with one stone” by simultaneously reducing the risks of developing both these diseases by adopting a healthy lifestyle.

Stopping smoking, exercising, remaining as thin as possible and replacing the consumption of ultra-processed foods by a diet rich in plant-based foods are all concrete means of reversing chronic inflammation and thus reducing the risk of cardiovascular diseases, cancer and of chronic diseases in general.

- (1) Ridker PM et al. Effect of interleukin-1 inhibition with canakinumab on incident lung cancer in patients with atherosclerosis: exploratory results from a randomised, double-blind, placebo-controlled trial. *Lancet* 2017; 390: 1833-1842.
- (2) Blom JW et al. Malignancies, prothrombotic mutations, and the risk of venous thrombosis. *JAMA* 2005; 293: 715-722.
- (3) Navi BB et al. Risk of arterial thromboembolism in patients with cancer. *J. Am. Coll. Cardiol.* 2017; 70: 926-938.
- (4) Navi BB et al. Arterial thromboembolic events preceding the diagnosis of cancer in older persons. *Blood* 2019; 133: 781-789.