

Type of anaesthesia used during breast cancer surgery may affect the risk of cancer recurrence

14 July 2014



(Medical Xpress)—Breast cancer is one of the main causes of cancer-related death in women. According to the National Cancer Registry, breast cancer is the most frequently diagnosed form of cancer in Ireland representing 32% of all cancer diagnosis every year.

Each year, in Ireland about 2,600 women are diagnosed with breast [cancer](#) and 660 women die from the disease. The deaths are mainly related to the spread of the disease through the bloodstream or lymphatic system to other parts of the body such as the bones, lungs, liver and brain, rather than the primary tumour.

New research findings by University College Dublin scientists published in the *British Journal of Anaesthesia* indicate that the type of anaesthetic used during surgery could affect the metastatic potential of [cancer cells](#) - that is their ability to spread to other parts of the body.

To conduct the research, the scientists took blood before and after surgery from [breast cancer](#)

[patients](#) who had been given different types of anaesthetic and pain relief. Some of the [women](#) had used standard inhaled general anaesthetics with morphine based pain relief, and others had been anaesthetised using regional (breast numbing) techniques with a single intravenous general anaesthetic called propofol to minimize morphine dosing. In laboratory conditions, breast cancer cells were then exposed to these blood samples.

The scientists found that the blood from patients who had been given standard inhaled general anaesthetics with morphine pain relief reduced a process known as "apoptosis" whereby the body's cells naturally die off. "Apoptosis" is crucial to preventing the metastatic spread of cancer. In contrast, cancer cells exposed to blood from patients who had been given regional anaesthesia and propofol showed a higher rate of apoptosis, or natural death of cancer cells.

In separate research also carried out at University College Dublin and published in this Special Issue of the *British Journal of Anaesthesia* on Cancer and Anaesthesia, laboratory tests indicate that anaesthetic technique can affect the activity of the body's immune system and its Natural Killer (NK) cells. NK cells are important in the body's resistance to the spread of cancer. Blood from breast cancer patients was exposed to NK cells and [breast cancer](#) cells. The blood from patients who had been given regional anaesthesia and propofol resulted in more Natural Killer cell anti-cancer activity than the blood from patients who received standard inhaled general anaesthetics with morphine [pain relief](#).

UCD Professor Donal Buggy, Professor of Anaesthesia at the UCD School of Medicine and Medical Science, University College Dublin, and a

Consultant Anaesthesiologist at the Mater Misericordiae University Hospital, who headed-up the research, points out that these laboratory results are not conclusive, and that there is not currently enough evidence to indicate cancer patients should choose one anaesthetic technique over another. However, he is calling for funding for ongoing research to ascertain if changing anaesthetic techniques could ultimately benefit [cancer patients](#).

Provided by University College Dublin

APA citation: Type of anaesthesia used during breast cancer surgery may affect the risk of cancer recurrence (2014, July 14) retrieved 23 October 2019 from <https://medicalxpress.com/news/2014-07-anaesthesia-breast-cancer-surgery-affect.html>

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