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Singapore proposes magnetic therapy to enhance chemotherapy treatment of breast cancer

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Non-invasive and painless treatment complements chemotherapy and potentially lowers adverse side effects

A team of researchers from the National University of Singapore (NUS) is pioneering a novel magnetic therapy, delivered using the OncoFTX System, that serves as an effective companion therapy to chemotherapy to enhance treatment outcome for breast cancer.

Each session of magnetic therapy involves exposing a breast tumour to a pulsed magnetic field at a strength of 3 milliTesla, for one hour.

In their recent study, the NUS team discovered that cancer cells that express high levels of TRPC1 – a cancer-causing gene associated with various types of cancers, such as breast cancer, pancreatic cancer, glioblastoma multiforme, lung cancer, hepatic cancer, multiple myeloma, and thyroid cancer – are more vulnerable to the magnetic therapy.

Hence, elevated TRPC1 expression could be used to identify patients who are suitable for a combination treatment involving magnetic therapy and selected chemotherapeutic agents such as doxorubicin (adriamycin).

The NUS team had also demonstrated through laboratory and preclinical studies that a combination of pulsed magnetic field exposure and chemotherapy drug doxorubicin was effective in reducing the size of breast cancer tumours.

To further validate their findings, the research team plans to embark on a first-in-human safety trial in the second half of 2022, in collaboration with the National University Cancer Institute, Singapore (NCIS) at the National University Hospital. The one-year clinical trial is expected to involve about 30 breast cancer patients who will undergo the magnetic therapy in combination with chemotherapy.

The NUS team also plans to test the effectiveness of their magnetic therapy in other types of solid tumours such as prostate cancer, with and without chemotherapy.