Scots health tech could hold key to cervical cancer treatment

Technology pioneered by a Scottish health innovator has featured in promising new research which could deliver less painful and more effective treatment for cervical cancer patients.

Respected medical journal The Lancet has published results from university lab tests which demonstrated how cancerous cells can be destroyed with technology from Stirling-based Emblation.

A team of scientists at the University of Glasgow used Emblation's Swift® device to treat lab-grown cancer cells with precise doses of microwaves, delivering highly effective results.

Dr Matt Kidd, Director of Research and Development, at Emblation, said: "It's hugely important that these results have been proven repeatedly under laboratory conditions and peer-reviewed.

"This is a first and absolutely vital step toward eventually getting tests out of the lab and into medical situations involving real patients.

"While we were delighted to provide a Swift device for the research and helped train the scientists in how to use it, we

had no involvement in the experiments. So, we have been genuinely thrilled to read about the highly-promising results in The Lancet."

Funded by a Chief Scientist Office grant, a five-strong team of scientists at the University of Glasgow undertook the research, with their methodology and findings now being published by The Lancet, one of the world's oldest and foremost medical journals. The study appears in eBioMedicine, part of its Discovery Science section.

The research focused specifically on treating cervical tumour tissues associated with the human papillomavirus (HPV) infections. Variations of HPV cause genital warts and are associated with a host of genital cancers in both men and women. High risk HPVs cause more than 99% of cervical cancers.

After growing 3D cancer tissues in the lab, the team then treated them with precise bursts of microwave energy from the Swift device. While varying the length of bursts and temperatures involved, the scientists measured and recorded the effects on cancer cells and surrounding tissues.

They found that the microwave energy "induced sustained, localised cell death at the treatment site". They also found lower levels of protein associated with cancer causing cells, a reduction in growth of diseased cells and increased levels of programmed cell death in tumours.

The Lancet report concludes: "Precision microwave delivery may present a potential new treatment for HPV-positive anogenital precancerous lesions and cancers."

The detailed, 16-page report also outlines why new treatment is so sought after. It explains that existing treatments of cervical cancers and pre-cancers include treatments "are effective but invasive and painful … often with subsequent bleeding and a two to three-fold increase in pre-term birth". The report also adds that "in all cases, diseased tissues can

be missed”.

It goes on: “A new, less invasive and painful method for treating HPV-associated anogenital disease and cancers could prove more acceptable and better tolerated by patients than current procedures and would save time and resources for clinicians and health care systems.”

The Swift device is already in use all over the world, particularly by podiatrists for treating stubborn verrucae – which are also caused by strains of HPV. More recently Swift has also been shown to be effective in treating Actinic Keratosis, pre-cancerous skin lesions, caused by over exposure to the sun and also associated with HPV infections.

Dr Kidd added: “Our technology has already delivered game changing results in podiatry and dermatology – but all of us at Emblation believe we have only just started to unlock the true potential of microwave therapies. We will continue to support research whenever we can that helps show how our devices may be beneficial in treatments from cancer to cardiac conditions.”

Emblation was founded by Gary Beale and Eamon McErlean, who met during post-graduate studies at Heriot Watt university in Edinburgh. The firm’s growth was boosted in 2021 when it was backed by London-based specialist healthcare investors at Apposite Capital.

https://emblation.com/

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