ENDObronchial microWAVE Ablation for the minimally invasive treatment of lung cancer

Results in Brief

Microwave heating device targets lung cancer

A minimally invasive system to target and destroy lung cancer tumours has the potential to improve treatment outcomes and significantly reduce healthcare costs.

HEALTH

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Lung cancer is the most common cause of cancer deaths globally, with someone dying of the disease every 30 seconds. Furthermore, deaths worldwide from lung cancer are expected to increase from 1.8 million in 2017 to nearly 3 million by 2035, due in part to an ageing population, and rising levels of smoking in developing countries.

With more than 6 million hospital admissions in Europe each year alone, the impact on public healthcare systems is also substantial. And despite recent advances in surgery, chemotherapy and radiotherapy, seven out of eight patients die within 5 years of diagnosis.

“Most lung cancer patients are ex-smokers with challenging respiratory illnesses,” explains project coordinator Giuseppe Ruvio, chief scientific officer at ENDOWAVE, Ireland. “This means that only about 15 % of patients are surgical candidates, and even then, treatment efficacy rates are variable.”

Stereotactic body radiation therapy, currently the primary alternative to surgery for

early-stage lung cancer, has been shown to prevent local recurrence in 89 % of patients after 5 years. However, the technology is confined to a small number of specialist centres, and remains very expensive.

Flexible, targeted treatment

In response to this healthcare challenge, Irish firm ENDOWAVE has developed a pioneering, minimally invasive device, designed to destroy the targeted lung tumour in a single intervention. The patented technology uses a flexible catheter system that can be navigated through the patient's airway.

The device then delivers targeted microwave heating to the tumour. Initial technical development work and market analysis were performed at the National University of Ireland, Galway.

"The idea is that a curative treatment can be delivered in a minimally invasive manner," says Ruvio. "This improves patient outcomes and reduces healthcare costs."

The aim of this EU-funded project was to complete a feasibility study and develop a business plan to bring ENDOWAVE's technology closer to commercialisation. Priorities included establishing a supply chain of expert component and manufacturing partners, as well as engaging with industry experts and opinion leaders.

Pathway to commercialisation

"This project enabled us to get in touch with major clinical organisations such as the European Respiratory Society and the American Thoracic Society," explains Ruvio. "These contacts have helped to shape our final product, and will be critical in raising global interest."

A direct relationship with the president of the European platform for patient advocacy groups Lung Cancer Europe was also established. Ruvio and his team were able to draw inspiration from lung cancer patients and feed this into product development.

Partnerships with global suppliers were secured. ENDOWAVE was also able to identify viable regulatory paths towards rapid product approval. This, ultimately, will enable the firm to bring their innovation to market.

"Looking ahead, we now need to complete proof of concept activities, detailed design iterations and further product development work," adds Ruvio. "This will provide the basis for a first in human study, and subsequent regulatory approval in

both the EU and United States.”

Ruvio expects ENDOWAVE to start clinical trials within 2 years, and to use this data to support global commercialisation of the technology. “This will lead to the creation of new jobs, both within the company and along the supply chain,” he notes. “Ultimately of course, bringing this technology to market will mean improving outcomes for lung cancer patients.”

Keywords

ENDOWAVE, lung, cancer, catheter, microwave, tumours, healthcare, smoking, invasive, stereotactic body radiation therapy

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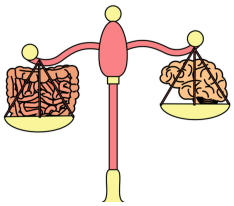

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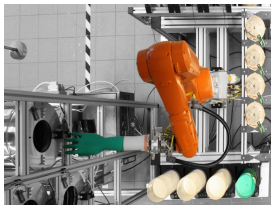

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Project Information

ENDOWAVE

Grant agreement ID: 888193

Project website

DOI
10.3030/888193

Project closed

EC signature date
3 December 2019

Start date
1 November 2019

End date
29 February 2020

Funded under
INDUSTRIAL LEADERSHIP - Innovation In SMEs

Total cost
€ 71 429,00

EU contribution
€ 50 000,00

Coordinated by
ENDOWAVE LIMITED
Ireland

Last update: 20 July 2020

Permalink: https://cordis.europa.eu/article/id/421567-microwave-heating-device-targets-lung-cancer