

Spinal cement may provide real support for cancer patients

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New technologies used to repair spinal fractures could soon be helping patients suffering from the bone marrow cancer multiple myeloma.

A research project led by engineers at the University of Leeds will focus on the disease - an incurable [cancer](#) of the [bone marrow](#) that causes destructive [lesions](#) in bones and makes them more susceptible to fracture.

The study will analyse whether techniques such as injecting cements into the spine to stabilise the bone, or using plates to fix fractures can be adapted for affected patients.

Although incurable, improvements in treatment mean that patients with multiple myeloma are surviving for longer, with up to a third surviving for at least five years. However, a better prognosis means that secondary symptoms, such as painful bone deterioration, have more time to take effect.

"Our aim is to give people suffering from this disease a better quality of life. If the spine becomes weakened or fractures, patients can do little more than stay in bed and try to deal with the pain," said Professor of Spinal Biomechanics, Richard Hall, who is leading the research at Leeds' Faculty of Engineering. "The majority of multiple myeloma patients are in their sixties or older, but even simple things that we take for granted, such as sitting your grandchild on your knee, can become impossible for them."

The work will combine laboratory experiments with computer modelling to predict the impacts of various treatments on patients.

Professor Hall will be collaborating with researchers at the Sunnybrook Health Sciences Centre, housed at one of Canada's largest hospitals in Toronto, and clinicians from Leeds Teaching Hospitals NHS Trust.

The project team includes Mr Jake Timothy, Consultant Neurosurgeon in Leeds, who has developed an award winning clinical vertebroplasty and kyphoplasty service that can help to fix painful vertebrae and spinal compression fractures associated with osteoporosis. He has seen the dramatic improvement that such procedures can have on the pain scores of patients affected by vertebral myeloma.

"There is still so much unknown about the positive and negative effects of these procedures," he says. "This money will undoubtedly aid our understanding and help us select which patients will benefit the most from these procedures, improving their quality of life even further."

The £600,000 project has been funded through the Engineering and Physical Sciences Research Council (EPSRC) and will run for four years. The work is part of the £50M research portfolio led by the Institute of Medical and Biological Engineering (iMBE) aimed at giving people '50 active years after 50'.

Professor Hall is also leading a €3 million EU-funded research project involving academic and industrial partners from Germany and Austria, looking at new ways of diagnosing and treating spinal fracture caused not only by disease, but by age and trauma.

Provided by University of Leeds

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