New research could prevent unnecessary prostate cancer treatment

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Radical treatments for prostate cancer could be avoided thanks to new research that links fat cells and obesity with the most common cancer among Australian men.

Led by the University of Adelaide, and including researchers from the University of Sydney's Charles Perkins Centre, the Ludwig Institute for Cancer Research in Melbourne and KU Leuven in Belgium, a new multi-centre Australian research team believes the makeup of lipids in the prostate gland could indicate whether and how prostate tumours will respond to treatment.

They have received a $3.25 million Revolutionary Team Award from the Movember Foundation and the Prostate Cancer Foundation of Australia over the next three years.

"The current treatments for early stage prostate cancer are very effective in eliminating cancer, but they also have major side effects that impact on quality of life," said Dr Andrew Hoy, from the University of Sydney's Charles Perkins Centre and Sydney Medical School.

"The key question is: does every man with prostate cancer need to go through that kind of radical therapy?"

As part of the Team Award, Dr Hoy's group at the University of Sydney is examining the impact of obesity on prostate cancer risk and the aggressiveness of prostate cancer tumours.

"Obesity doesn't necessarily increase your chances of getting cancer, but if you are obese and you do develop cancer, it is more likely to be fatal," Dr Hoy said.

"Obese people also seem to be less responsive to our current therapies for cancer. This means that as more and more of our population becomes obese, our strategies for managing prostate cancer will have to adapt."

According to Dr Hoy, the amount of fat around the prostate is a marker of disease aggressiveness. Furthermore, the types of fats (polyunsaturated, monounsaturated or saturated fats) dictate how the tumour cells will respond to treatment. By better understanding the influence of these fats on the behaviour of the cancer cells, the team hopes to improve the diagnosis of prostate cancer in the short term, enhance current treatments and develop new treatments in the long term.

"We think that these fat cells are providing a fuel tank for prostate cancer tumours. Given the tank of energy is much larger in obesity, the cancer cells have the potential to be much more aggressive and resistant to treatment.

"Thanks to the Movember Revolutionary Team Award, we can harness the collective new knowledge from the University of Adelaide, the University of Sydney, the Ludwig Institute for Cancer Research and KU Leuven to detect these fats using state-of-the-art imaging technologies with the goal of making a direct impact on clinical care for prostate cancer patients worldwide.

"With our findings, we aim to be able to determine whether a man needs treatment or not and, if he does, to quickly assess if it is working. Ultimately this will better differentiate the types of cancer that for many men in Australia and around the world are currently being over-treated,"

Dr Hoy said.

Paul Villanti, the Movember Foundation's Executive Director of Programs, said the research will be the first of its kind and help men living with and beyond prostate cancer have the treatment and care needed to be physically and mentally well.

"Involving a trans-disciplinary team of experts at the forefront of their respective fields, this program will provide the first proof of whether such an approach can improve or add to the clinician's toolkit in predicting tumour behaviour and patient outcomes," Villanti said.

Provided by University of Sydney