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More blood vessels in hormone-resistant prostate tumors

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Patients with advanced prostate cancer are often treated with hormones, but when the tumours start growing again they have more and different blood vessels, reveals a thesis from the Sahlgrenska Academy, at the University of Gothenburg, Sweden. This discovery paves the way for new treatments for hormone-resistant prostate cancer.

Late in the course of the disease, when the prostate cancer has spread, most patients are given hormone therapy. This reduces the production of the male sex hormone and the tumour shrinks.

"The problem is that the effect is transient," says molecular biologist Heléne Gustavsson, who wrote the thesis. "Sooner or later the tumour will develop resistance to the hormone treatment and then the cancer will continue to grow, often as secondary tumours in the bones.

Tumours have to make new blood vessels if they are to grow and spread in the body. The thesis shows that the tumours that have relapsed after a patient has been given hormone therapy contain more blood vessels. The blood vessels often also look different to how they looked during the earlier stages of the disease.

Another interesting finding is that levels of a protein known as ADAMTS1 are lower in these aggressive tumours. This protein is known to inhibit the growth of blood vessels. Low levels of the protein in the tumours are associated with more blood vessels and a greater spread of the cancer.

"If we can prevent the tumour from making new blood vessels, we can also prevent the cancer from spreading," says Gustavsson. "Now that we have a better understanding of how the formation of blood vessels is controlled in this stage of prostate cancer, we are in a better position to develop medicines that suppress the formation of new vessels in hormone-resistant prostate cancer."

The research team at the Sahlgrenska Academy will now assess how these changes affect the function of the blood vessels and their sensitivity to different treatments.

Provided by University of Gothenburg

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