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Prostate cancer medicine is not a cure for COVID-19, study shows

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A medicine that blocks testosterone and is used against certain types of prostate cancer would, it was hoped, also help against COVID-19. But the hope has not been fulfilled: Following a clinical study and register studies, researchers at Umeå University and the University of Gothenburg have been unable to confirm the positive findings in

previous studies.

"It's disappointing, of course, that we weren't able to find a way of reducing morbidity in COVID-19, and that the results weren't in line with the theory as we'd hoped. But at the same time, it shows how important real studies are before you can know something works," says Karin Welén, Associate Professor at Sahlgrenska Academy, University of Gothenburg.

The drug substance studied, enzalutamide, inhibits the function of the hormone testosterone, which in turn controls the expression of certain proteins. The drug can thereby slow down the progression of certain types of prostate cancer. Since a protein that is needed for the coronavirus to penetrate cells is controlled in the same way, one hypothesis was that the drug might also slow down, or stop, the emergence of disease in people infected with COVID-19. Smaller studies among patients who took similar drugs early on in the pandemic also seemed to support the hypothesis. This was why, in summer 2020, researchers in Umeå and Gothenburg launched the COVIDenza project.

The study was conducted at five hospitals around Sweden. A total of 42 patients admitted for treatment for COVID-19 participated: 30 were treated with enzalutamide, while the remaining 12 made up the control group. However, there were no discernible signs of the drug having any beneficial effect on the participants' health status, and the study was therefore discontinued on the recommendation of its independent review committee.

In a parallel study of national medical records, the researchers compared the disease progression of COVID-19 in men treated with testosterone inhibition for prostate cancer with those not given this type of treatment. Here too, no beneficial effect of testosterone-inhibiting drugs could be seen. Neither was any inhibition of the virus seen in a further parallel

study, examining the effect of enzalutamide in a cell culture model with human lung cells. In the clinical study, on the contrary, the researchers observed a need for a longer care period in the treated group, i.e. those who received the drug. On the other hand, this was not seen in the register study.

"It's important to point out that we saw no elevated mortality that we link to the drug itself in any of the studies, so there's no cause for concern about getting more serious COVID-19 if you take a testosterone -suppressing drug for your prostate cancer," says Andreas Josefsson, urologist and researcher at Umeå University, who headed the study. He adds that a previously known link between severe cancer disease and death from COVID-19 was also observable in this study.

The hospitals taking part in the clinical study were the University Hospital of Umeå, Sahlgrenska University Hospital in Gothenburg, Linköping University Hospital, Ryhov County Hospital in Jönköping, and Sundsvall Regional Hospital.

The COVIDenza study was led by Andreas Josefsson at Umeå University and Karin Welén at Sahlgrenska Academy. The register study was carried out in collaboration with Anne-Marie Fors Connolly and the cell culture study in collaboration with Anna Överby Wernstedt, both at Umeå University.

More information: Karin Welén et al, A Phase 2 Trial of the Effect of Antiandrogen Therapy on COVID-19 Outcome: No Evidence of Benefit, Supported by Epidemiology and In Vitro Data, *European Urology* (2021). DOI: 10.1016/j.eururo.2021.12.013

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