Brain tumour cells found circulating in blood

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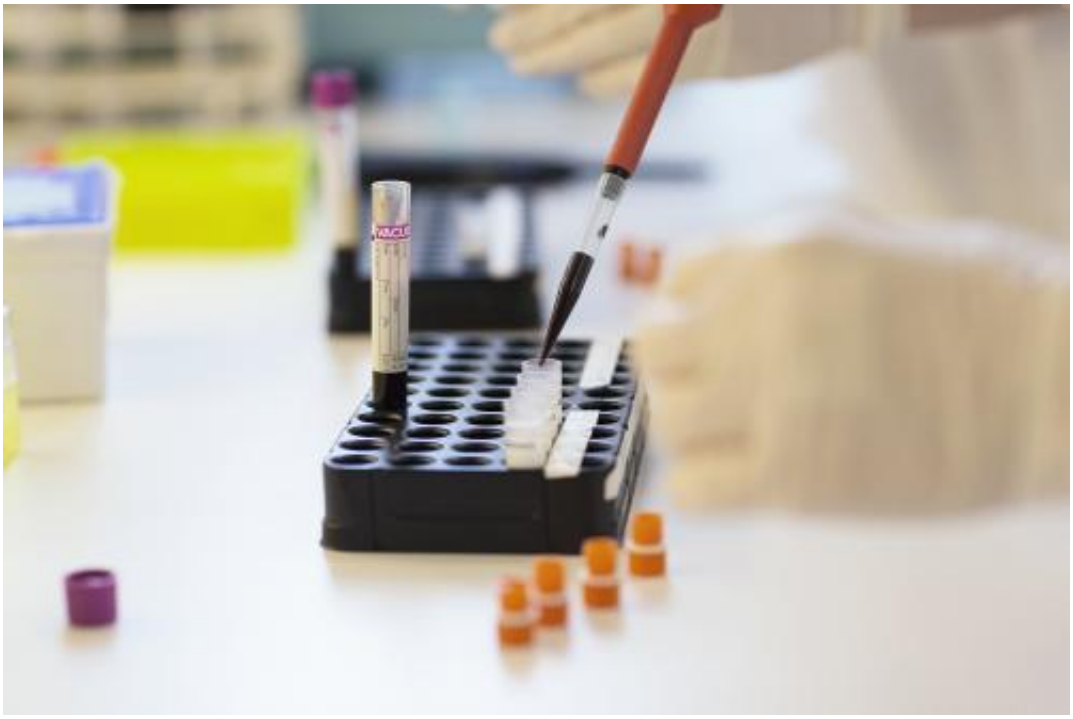

Credit: Faculty of Medicine NTNU

(Medical Xpress)—German scientists have discovered rogue brain tumour cells in patient blood samples, challenging the idea that this type of cancer doesn't generally spread beyond the brain.

Researchers from the University Medical Center Hamburg-Eppendorf, in Hamburg, found that patients with an aggressive form of brain tumour known as glioblastoma multiforme sometimes have tumour cells circulating in their blood.

The discovery could help doctors improve the way they monitor how the disease progresses, and could have implications for treatment.

Until recently it was believed that glioblastoma is restricted to the brain, as few patients with the disease develop secondary tumours in other parts of the body.

The reason for this lack of spread is unclear, with some experts suggesting that brain cancer cells are unable to pass through the barrier that separates circulating blood from the brain's fluids, known as the blood brain barrier.

But others believe that it could simply be that these particular brain tumour cells are unable to grow in other organs, or that they do not have time to grow before the fatal effects of the primary tumour take hold.

The new study, led by Carolin Müller and published in the journal *Science Translational Medicine*, looked at blood samples from 141 patients with glioblastoma and found that one in five (20.6 per cent) contained circulating tumour cells.

Dr Steve Pollard, a Cancer Research UK glioblastoma expert, who was not involved in the research, commented on the surprisingly high number of patients in which circulating cells were found.

"Fishing for rogue tumour cells in blood samples is an exciting area of research and this new study shows that circulating tumour cells can be found in more people with glioblastoma than previously thought," he said.

In a related article commenting on the new study, Lara Perryman and Dr Janine Erler suggest that the findings could have an impact on the diagnosis and treatment of glioblastoma patients in the future.

And while Cancer Research UK's Dr Pollard agrees, he cautioned that a greater understanding of these errant brain tumour cells will be needed as glioblastoma is highly genetically diverse.

"This could be helpful in diagnosing the disease, although given how diverse the different cells within a patient can be, research will be needed to work out how these circulating cells relate to the primary cancer," he said.

The German team believe their findings may also explain why some transplant recipients who receive organs from brain tumour patients have gone on to develop cancer.

This may be critical, says Dr Pollard, as new ways of treating glioblastoma are developed.

"This will be important when new therapies emerge, as improvements in survival rates may offer more time for these rogue cells to spread around the body and establish new tumours, something that's evident in rare cases of glioblastoma developing following organ donation."

More information: Muller, C, et al. (2014). "Hematogenous dissemination of glioblastoma multiforme." *Science Translational Medicine*, 6 (247), 247-247 DOI: 10.1126/scitranslmed.3009095

Perryman, L., & Erler, J. (2014). "Brain Cancer Spreads." *Science Translational Medicine*, 6 (247), 247-247 DOI: 10.1126/scitranslmed.3009920

Provided by Cancer Research UK

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