Lay Summary

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A study of telomere biology in gliomas and drivers of genomic instability

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Glioblastoma (GBM) is the commonest adult brain cancer. It remains a devastating disease, with average survival being 15-18 months. We therefore need to urgently find newer, targeted therapies.

Telomeres are small caps on chromosomes which carry genetic material in our cells. They shorten during the formation of cancer cells, which can lead to chromosomes fusing and mutating. This is a key step for the formation and growth of many cancers and may also occur in GBMs.

Knowing how long a telomere is and whether it has fused could help us to predict survival of patients with GBM and response to treatments. Our lab has demonstrated this in leukaemia and breast cancer and shown highly promising results in 100 GBM patients.

In this study we will compare telomere length in a further 100 tumour samples with patients' survival. We will then analyse if these tumours also show telomere fusions and characterise these events to understand how they drive chromosomal mutation.

Excitingly, tumour cells with abnormal telomeres may be better targeted by newer medicines working against our response to chromosomal damage, for example, Olaparib. This drug is being trialled in a UK-wide GBM study. Knowing which patients have shorter telomeres could help us predict who will benefit most from such drugs