Lay Summary

BRAIN UK Ref: 18/001

Role of c-Myc in choroid plexus tumours (Incorporating previous applications BRAIN UK Ref: 13/003 and 15/007)

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Choroid plexus tumours (CPT) are rare brain tumour that mostly occur in children. Majority of them are benign, and are treated mainly by surgery, with a risk of surgical complications in some children. Moreover, not all tumours can be completely removed. A proportion of them can recur or spread to other parts of brain or spinal cord, and a minority of them can also progress to become malignant. Due to its rarity, there is currently limited knowledge about the genetic changes that lead to development and progression of these tumours.

In our study, we are interested in the effects of a gene called c-Myc, which is well known to be abnormal in various malignancies. We are interested in this gene because, we incidentally observed CPT developing in a high proportion of mouse models, which were genetically engineered to have increased expression of c-Myc. We also found that a third of the human CPTs express high levels of c-Myc. Our preliminary results suggests that c-Myc contributes towards development of CPT by altering the inflammation system in the choroid plexus tissue. This is a new finding, and we hypothesise that, CPT with high c-MYC expression, responds to anti-inflammatory drug treatment.

If our hypothesis is proven, then it would be basis for further clinical trials with anti-inflammatory treatment. This would be ground to test if the patients with CPTs could be treated with drugs/medicines only, hence avoiding surgery and its adverse effects on the developing brain of the children.

Publications:

Date	Publication title
2019	c-MYC overexpression induces choroid plexus papillomas through a T-cell mediated inflammatory mechanism