

Lay Summary

BRAIN UK Ref: 11/008

ADAM17 in subarachnoid haemorrhage

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Subarachnoid haemorrhage (SAH) is bleeding around the brain typically caused by a ruptured blood vessel. A delay in the lack of blood perfusion (ischaemia) is an important determinant in the outcome of SAH. Biological pathways involved in scavenging the oxygen-binding component of blood (haemoglobin) may therefore be important in the response and recovery of an individual to SAH. A previous study by the researcher demonstrated that the brain is poorly adapted to the scavenging of haemoglobin after SAH. This has led to a particular scavenging pathway (CD163-haptoglobin-haemoglobin system) being identified as one that may respond to pharmacological manipulation in order to improve its efficiency. This may be achieved by increasing the number of cells recruited to this system by inhibiting a particular molecule (ADAM17) which is involved in normal cell signalling and activation.

This study will apply specific staining techniques to cases of SAH and age- and gender-matched controls to demonstrate ADAM17 expression in the brain, demonstrate cells important in haemoglobin scavenging pathways and sites of haemorrhage. Data will be analysed quantitatively in order to establish if any correlations exist between ADAM17 expression and haemoglobin metabolism in SAH in order to determine its use as a potential therapeutic target.