Biochemical aspirin resistance in stroke patients: a cross-sectional single centre study

ABSTRACT

Background: Aspirin use is known to reduce the recurrence of stroke. However, the clinical response to aspirin has been mixed. The rate of stroke recurrence whilst on aspirin treatment is still unacceptably high. A plausible explanation for this may be resistance to the effects of aspirin. The causes of aspirin resistance are manifold and multi-factorial. We conducted a study to investigate the prevalence rate of biochemical aspirin resistance in a cohort of aspirin-naïve stroke patients. We also sought to determine the inherent factors that may predispose towards the development of aspirin resistance. Method: This was a cross-sectional, observational study conducted on patients admitted to our centre with an acute stroke who were aspirin-naïve. The diagnosis of an acute stroke was confirmed by clinical history and brain imagi ng. Fifty consecutive patients were prospectively enrolled. Socio demographic data were collected and baseline blood investigations were performed. Patients were tested for biochemical aspirin resistance using Multiplate platelet analyser (Dynabyte, Munich, Germany) after 5 doses of aspirin, corresponding to a total dose of 900 mg. Results: The median age of patients was 65.5 years and 54 % of patients were female. There were 11 smokers; of these 10 were male. Twenty-six (52 %) patients were Chinese, 21 (41%) were Malay and 3 (6.0 %) were Indian. Aspirin resistance was present in 14 % of our patients.There was an inverse relationship between the presence of aspirin resistance and plasma HDL levels ($r = -0.394$; $p = 0.005$). There was no relationship observed between aspirin resistance and total cholesterol, triglycerides, LDL, HbA1c, ALT, ALP, urea and creatinine levels. There were no significant differences in demographic profiles or smoking status between the aspirin resistant and non-aspirin resistant groups. We did not find any link between ethnicity and aspirin resistance. Conclusions: Our results indicate that a lower HDL leve l is associated with biochemical aspi-rin resistance. This may increase platelet aggregation and consequently increase the risk of a recurrent stroke. The clinical implications for aspirin resistance are far reaching. Any evidence that correctable factors may negatively influence the action of aspirin warrants further investigation. The prevalence rate of biochemical aspirin resistance in our study is comparable to the findings in other studies performed in an Asian population. Further research is required to determine how our findings translate into clinical aspirin resistance and stroke recurrence.

Keyword: Ischaemic stroke; Aspirin resistance; Anti platelet therapy; Asia; Developing countries; Risk factors; Aspirin