

## **Endothelial Dysfunction and Platelet Activation Following Acute Ischemic Stroke**

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Endothelial dysfunction has been observed in stroke patients. Our aim was clarify whether recent acute ischemic stroke is associated with impaired vascular function and platelet activation.

Methods: 43 acute ischemic stroke patients were recruited. All were conscious, and ischemic stroke was defined clinically and by brain CT. Clinical evaluation was done on admission and on day 4. Vascular non-invasive evaluation was done (the brachial artery plethysmography method) within 24 hours of admission. Levels of P-selectin were measured on admission and on day 4.

Results: 43 patients (28 men, 15 women) and 42 healthy subjects (30 men, 12 women) were enrolled. Patients were older ( $62.4 \pm 12.5$  y vs.  $43.5 \pm 10.8$  y,  $p=0.001$ ), with worse endothelial function ( $-4.4 \pm 7.4\%$  vs.  $15.9 \pm 6.8\%$ ,  $p=0.001$ ), higher BMIs ( $28 \pm 6$  vs.  $25 \pm 5$ ,  $p=0.001$ ). No gender effect was noted in age ( $60.7 \pm 12.8$  y vs.  $65.7 \pm 11.4$  y,  $p=0.19$ ) or FMD% ( $-5.1 \pm 7.8\%$  vs.  $-2.5 \pm 6.6\%$ ,  $p=0.25$ ). Neurological scale (NIHSS) on admission was  $4.9 \pm 3.4$ , decreased to  $3.2 \pm 3.0$  after 4 days ( $p=0.001$ ). Men's NIHSS was  $4.8 \pm 3.8$  on admission, decreased to  $3.2 \pm 3.4$  on the 4th day ( $p=0.001$ ). Women's NIHSS on admission was  $5.0 \pm 2.7$ , decreased to  $3.3 \pm 2.3$  on the 4th day ( $p=0.001$ ) without gender differences P-selectin levels were high on admission ( $68.0 \pm 55.5$  pg/ml), increased to  $102.3 \pm 72.0$  pg/ml on the 4th day ( $p=0.01$ ). Men had higher P-selectin levels on admission ( $79.1 \pm 66.7$  pg/ml vs.  $48.9 \pm 15.4$  pg/ml,  $p=0.02$ ) that further increased to  $113.6 \pm 82.6$  pg/ml ( $p=0.05$ ); Women's P-selectin increased to  $83.5 \pm 46.4$  pg/ml ( $p=0.01$ ) without a gender effect on day 4 ( $p=0.08$ ).

Conclusions: Following acute ischemic stroke patients have severe endothelial dysfunction and increased coagulation activity that suggest risk to develop vascular events.