

Fluoxetine and nortriptyline affect NTPDase and 5'-nucleotidase activities in rat blood serum

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Depression is a serious condition associated with considerable morbidity and mortality. Selective serotonin reuptake inhibitors and tricyclic antidepressants, such as fluoxetine and nortriptyline, respectively, are commonly used in treatment for depression. The objective of this study was to investigate the effect of fluoxetine and nortriptyline on rat blood serum after *in vivo* (acute and chronic) and *in vitro* treatments. In acute treatment, nortriptyline decreased ATP hydrolysis (41%; 0.73 nmol Pi/min/mg) when compared to control (1.25 nmol Pi/min/mg), but not altered ADP and AMP hydrolysis. In contrast, fluoxetine did not change NTPDase and ecto-5'-nucleotidase activities. Significant inhibitions of ATP, ADP, and AMP hydrolysis were observed in chronic treatment with fluoxetine (60%, 32%, and 42% for ATP, ADP, and AMP hydrolysis, respectively, $P < 0.05$). Similar effects were shown in chronic treatment with nortriptyline (37%, 41%, and 30% for ATP, ADP, and AMP hydrolysis, respectively, $P < 0.05$). In addition, there were no significant changes in NTPDase and ecto-5'-nucleotidase activities when fluoxetine and nortriptyline (100, 250, and 500 μM) were tested *in vitro*. Our results have shown that fluoxetine and nortriptyline altered the extracellular catabolism of ATP, suggesting that homeostasis of vascular system can be influenced by antidepressant treatments.

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