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# Antiplatelet Mechanism of 2-Chloro-3-[4-(ethylcarboxy)-phenyl]-amino-1,4-naphthoquinone (NQ12), An Antithrombotic Agent

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We have previously reported that NQ12, a antithrombotic agent, displayed a potent antithrombotic activity, and this might be due to antiplatelet rather than anticoagulation effects. In the present study, we have investigated the antiplatelet mechanism of NQ12. NQ12 suppressed collagen-, arachidonic acid- and U46619-induced rabbit platelet aggregation in a concentration dependent manner, with $IC_{50}$ of 0.71 0.2, 0.91 0.3 and 0.42 0.1 M, respectively. NQ12 concentration-dependently inhibited collagen-mediated arachidonic acid liberation with an $IC_{50}$ value of 2.1 0.1 M. In addition, NQ12 potently suppressed thromboxane $B_2$ formation by platelets that were exposed to arachidonic acid, but had no effect on the production of $PGD_2$, indicating an inhibitory effect on $TXA_2$ synthase. This was supported by a $TXA_2$ synthase activity assay that NQ12 concentration-dependently inhibited $TXB_2$ formation converted from $PGH_2$. Moreover, the 12-hydroxy-5,8,10,14-eicosatetraenoic acid (12-HETE) formation by platelets that were exposed to arachidonic acid was also suppressed by NQ12. Taken together, these results suggest that NQ12 has a potential to inhibit $TXA_2$ synthase activity, and modulate arachidonic acid liberation as well as 12-HETE formation in platelets. This may be a convincing mechanism for the antithrombotic action of NQ12.