ANTIARRHYTHMIC PROFILE AND ENDOTHELIAL ACTION OF NOVEL DECAHYDROQUINOLINE DERIVATIVES

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We tested antiarrhythmic and endothelial action of novel decahydroquinoline derivatives. Antiarrhythmic activity was analyzed using models of aconitine-, calcium chloride-, and adrenaline-induced arrhythmias in rats. Potency to induce nitric oxide (NO)-dependent coronary vasodilation was assessed in isolated guinea pig heart perfused according to Langendorff technique.

Among 15 novel decahydroquinoline derivatives (D1–15), four of them displayed antiarrhythmic activity (D12–D15). D12–D15 compounds were more active in the model of aconitine–induced arrhythmias than in calcium chloride-induced arrhythmias and were inactive in the model of adrenaline-induced arrhythmias. Profile of antiarrhythmic activity of D12–D15 compounds was similar to that of quinidine and procainamide.

Interestingly, in the isolated guinea pig heart D14 and D15 (10^{-5} M) induced coronary vasodilation, that was mediated by endothelium-derived NO.

In conclusion, novel decahydroquinoline derivatives described here (D12–D15) show antiarrhythmic activity typical of antiarrhythmic drugs of class I. Importantly, some of these compounds (D14, D15) release NO from coronary endothelium, which may provide an additional therapeutic benefit.

Key words: decahydroquinoline, antiarrhythmic, endothelium, nitric oxide, coronary vasodilation

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