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Involvement of IL-1b and IL-6 in antiarrhythmic properties of atorvastatin in ouabain-induced arrhythmia in rats

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Evidence shows that statins possess wide beneficial cardioprotective and anti-inflammatory effects; therefore, in the present experiment, we investigated the antiarrhythmic properties of atorvastatin in ouabain-induced arrhythmia in isolated rat atria and the role of several inflammatory cytokines in this effect. Male rats were pretreated with either of atorvastatin (10 mg/kg) or vehicle, orally once daily for 6 weeks. After induction of anesthesia, we isolated the atria and after incubation with ouabain, the time of onset of arrhythmia and asystole as well as atrial beating rate and contractile force were recorded. We also measured the atrial levels of IL-1b, IL-6, and TNF-a after the injection of ouabain to animals. Pretreatment with atorvastatin significantly delayed the onset of arrhythmia and asystole compared with the vehicle-treated group ($p < 0.01$, $p < 0.001$, respectively). Incubation of ouabain boosted both atrial beating rate and contractile force in the vehicle-treated group ($p < 0.05$), while these responses in the atorvastatin-treated group were not significant ($p > 0.05$). Injection of ouabain elevated the atrial levels of IL-1b, IL-6, and TNF-a, while pretreatment of animals with atorvastatin could reverse the ouabain-induced increase in atrial IL-1b and IL-6 ($p < 0.01$ and $p < 0.05$, respectively). It is concluded that observed antiarrhythmic effects of atorvastatin might be attributed to modulation of some inflammatory cytokines, at least IL-1b and IL-6.

Biography

Azam Bakhtiarian has her expertise in pharmacology. Her main focus is on characterizing the effect of different drugs on both in vitro and in vivo models. She has received her PhD from the University of California in Irvine and she is currently Associate Professor of Pharmacology in Tehran University of Medical Sciences.

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