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MEETING ABSTRACT

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Investigation of the antifibrillatory drug interactions between valsartan and diltiazem in isolated perfused rabbit hearts

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Background: In view of the reliability of the serial-shock method of measuring ventricular fibrillation threshold (VFT) in assessing the antifibrillatory potency of many antiarrhythmic drugs [1] and the alarming reports of the proarrhythmic effects of several antiarrhythmic agents [2], we decided to use the above technique to study the antifibrillatory interactions that may occur when antiarrhythmic and antihypertensive drugs from different classes are combined. In several previous studies, we have investigated the antifibrillatory interactions between the antihypertensive drug valsartan and lidocaine (as class I antiarrhythmic agent), propranolol (as class II antiarrhythmic agent) and amiodarone (as class III antiarrhythmic agent). In this abstract, we report the antifibrillatory interactions between valsartan and the class IV antiarrhythmic agent diltiazem.

Methods: Studies were carried out on hearts isolated from New Zealand white rabbits of either sex weighing 1.5 to 2 kg. The details of the method and the stimulation connections have been given previously [1].

Results: In six hearts, measurement of VFT was made in the absence of any drug throughout the experiments. In this group, no significant change in the threshold was observed. Perfusion with diltiazem produced a significant, dose-dependent increase in VFT. On the other hand, perfusion with valsartan did not cause any significant change in the threshold. In addition, there was no significant difference between the increase in VFT produced by the infusion of 0.02 μ mol of diltiazem and the effect when it was combined with 1 μ mol of valsartan. This is in contrast to a synergistic antifibrillatory effect of the combined use of diltiazem and amiodarone which we reported recently [3].

Discussion: The lack of antifibrillatory interactions between valsartan and diltiazem may suggest its safety in combining with class IV antiarrhythmic agents in the treatment of hypertensive patients developing cardiac arrhythmias. However further studies are required to establish this in the clinical setup.

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References

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