Comparison of the effects of verapamil on LVP and ECG parameters between guinea-pig and rat Langendorff perfused isolated hearts

DUCROQ J., DIDIER H., SALVETAT C., LE GRAND M.
PhysioStim, Lautrec, FRANCE.

INTRODUCTION:
The aim of the present work was to compare the sensitivity of rat and guinea-pig Langendorff perfused isolated hearts to the calcium channel inhibitor verapamil on left ventricular pressure parameters and on the PR interval of the electrocardiogram.

MATERIALS AND METHOD:
- Spontaneous beating guinea-pig and rat Langendorff perfused isolated hearts were perfused with Kreb’s solution, oxygenated and warmed at 37 ± 1°C, at a constant perfusion pressure of 55 ± 5 mmHg for guinea-pig and 70 ± 5 mmHg for rat.
- After an equilibration period and a 10 min vehicle superfusion, verapamil was perfused at three increasing concentrations (0.03, 0.1 and 0.3 µM) for 10 minutes per concentration.
- The following parameters were measured: developed pressure, maximal rate of contraction (Max dP/dt), maximal rate of relaxation (Min dP/dt) and PR interval (n=3).

RESULTS

Conclusion: If both species are able to detect the negative inotropic effects of the calcium channel blocker verapamil on left ventricular pressure, the guinea-pig isolated heart appears to be more sensitive than the rat isolated heart to investigate the effects of the compound on PR interval.