

## Effects of the intrathecal administration of capsaicin on the cardiac rhythm in anaesthetized rats

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Numerous literature reports have shown that the electrical and chemical stimulation of some cerebral structures may induce cardiac arrhythmias Cuparencu (1988), Cuparencu&Rossi (1992), Cuparencu & all (1995). In this paper, we describe our investigations on the putative arrhythmogenic antiarrhythmogenic effects of capsaicin, a potent irritant -Smith (1992), which also have desensitizing properties Smith (1992). Experiments were carried out in Wistar rats of both sexes, 180-220 g, anaesthetized with sodium pentobarbital (45 mg/kg intraperitoneally), maintained in an artificial respirator (Ugo Basile). A thin polyethylene cannula was inserted into the subarachnoid space up to the 4<sup>th</sup> thoracic vertebra-Yaksh & Rudy (1976). The electrocardiogram (ECG) was recorded from D1, D2 and D3 leads. Heart rate (expressed as percentual changes with respect to the control value) and arrhythmogenic index (the ratio of ectopic beats/ total beats recorded within ten minutes, expressed as %) were recorded. The statistical significance of differences between groups was appreciated according to the rank signed Wilcoxon's test and in some cases with "t" test- Snedecor & Cochran (1978). Control experiments showed that saline or the vehicle (TWEEN) used for capsaicin dissolution were without effect in the test system; KCl used alone induced cardiac arrhythmias in all experiments. To study the effect of capsaicin, anaesthetized rats received the compound intrathecally in doses of 10ug and 100ug/ 10µl. When the treated rats received KCl (2000ug/ 10µl), arrhythmias were produced in only 50% of cases. Capsaicin is a counter-irritant which acts by the stimulation of a special type of afferents, the so-called "polymodal nociceptors". These afferents are responsible for

the transmission of noxious (thermal) stimuli to the central nervous system. Capsaicin acts upon specific receptors, the vanilinoïd receptors, found in many tissues-Maggi & all (1993). We report here the first investigations on the possible cardiovascular response to capsaicin. Administered systemically capsaicin induced a variety of cardiovascular responses, including vasodilatation, bradycardia and hypotension, due to the release of tachykinins and CGRP( calcitonin gene releasing peptide)- Szolcsany (1990).

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