THE ANTINOCICEPTIVE ROLE OF MAGNESIUM AFTER INTRACEREBROVENTRICULAR ADMINISTRATION

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Aim of the study: The present study is trying to identify experimental arguments for a magnesium role in central pain modulation following an intracerebroventricular (icv) administration.

Materials and methods: Healthy adult male Wistar rats, initially weighing 350– 450 g, were used.The rats were maintained in polyethylene cages with food and water **ad libitum**, in a laboratory with controlled ambient temperature (21 ± 2°C) and under a 12h light–dark cycle. Groups of 7 rats were treated with magnesium (Mg) chloride,600 nmol Mg/ rat in 10 µL of saline. Stoelting stereotaxic equipment was used for icv administration, in previously ether-anesthetized animals. The controled group received an equal volume of saline. Hot plate and tail clip test was performed before 15, 30, 45, 60, 75 and 90 minutes after the administration of substances.

Results: Our results show that intracerebroventricular administration of magnesium chloride has an analgesic effect for the hot plate and tail clip test. The maximum effect was observed after 75 minutes in tail clip and 90 minutes in hot plate.

Discussions: While the implication of Mg as a divalent cation has been studied before in relation to pain modulation, this is the first study to look at its effects on nociception after icv administration. As magnesium blocks the N-methyl-D-aspartate (NMDA) receptor and its associated ion channels, it can prevent central sensitization caused by peripheral nociceptive stimulation. However magnesium ion can block Ca influx and at the same time can noncompetitively antagonize NMDA receptor channels

Conclusions: Magnesium has an antinociceptive effect following icv administration. However, the slow onset of the analgesic effect observed in our experiments may involve a different mechanism or site of action than cited in the literature.

Keywords: Magnesium, intracerebroventricular, nociception.

NEW 99mTC – SILICA NANOPARTICLES RADIOTRACER BIODISTRIBUTION STUDIED THROUGH SCINTIGRAPHY

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Aim of the study: Silica nanoparticles (SNP) are a new and versatile tool for targeting drug delivery. Our aim was to investigate biodistribution of a new SNP derivate in guinea pigs, in order to identify the possible uses as a drug carrier.

Materials: SNP were prepared at the *Institute of Chemistry and Bioanalytics, University of Applied Sciences Northwestern Switzerland, Muttenz, Switzerland.* One 124 nm size SNP derivate was used: AA124 - SNP carrying OH groups on the surface.

Methods: The procedure of 99mTc - SNP coupling was an in-house preparation performed as follows: 1- first of all, SNP were suspended in EtOH (5mg/ml) and sonicated for 15 or 20 min for better disper-