A | PAIN SYNDROMES

I-A.01

EVALUATING THE ANALGESIC POTENTIAL OF *OXYURANUS SCUTELLATUS* SNAKE VENOM

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Background and aims: Literature has shown that snake venoms with neurotoxic activity contain analgesic molecules. However, this approach has not yet been investigated in the venom of *Oxyuranus scutellatus* (vOs) snakes, which is also neurotoxic. Here we investigated the analgesic activity of vOs in animal models for assessing pain sensitivity.

Methods: Wistar rats were submitted to the paw pressure test before and 3 h after intraplantar injection of carragenin (Cg, 200µg/100 µL) for evaluation of hyperalgesia. Were investigated: 1) dose-response effect of vOs administered orally (doses used: 1, 5, 25 and 125 µg/kg); 2) duration of analgesic effect and 3) reversion of hyperalgesia. The vOs (1, or 25 µg/kg) was too evaluated in mice submitted to hot plate test. The action of vOs (25 µg/kg) on the motor deficit of rats was assessed in the open field test. Protocol number 4120310323.

Results: All doses of vOs induced analgesia. The lowest dose (1 µg/kg) was the most efficient. It not only induced analgesia when administered 4 hours before the Cg injection but also reversed hyperalgesia present 1 hour after the Cg injection. The vOs, at both doses used, did not induce analgesia when evaluated in the hot plate test. Furthermore, the vOs did not alter the exploratory activity of the animals.

Conclusions: The data presented here reveal, for the first time, the analgesic effect of *Oxyuranus scutellatus* snake venom. Furthermore, the data suggest that the analgesia results from the venom‘s inhibitory action on the mechanisms involved in the pathophysiology of inflammatory pain.

Funding: Fundação Butantan, CAPES.

I-A.02

COMPARING CORTICAL RESPONSES TO CUTANEOUS THERMAL HEAT PAIN AND DEEP-TISSUE CUFF PRESSURE PAIN IN HUMANS

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Background and aims: Pain comes in different shapes and forms posing a challenge to pain research. Since different methods have been used to mimic *real-life* pain through thermal, pressure, or electric stimulation, the findings in one pain domain might not be transferrable to other pain domains due to diverging mechanisms.

Methods: We aimed to identify those potentially diverging behavioural responses and brain activation patterns of cutaneous thermal heat and deep-tissue cuff pressure pain using functional magnetic resonance imaging (fMRI).

Results: We found that both pain modalities induced reliable behavioural responses with no significant difference in perceived painfulness between heat and pressure pain. In the brain, heat and pressure pain showed overlapping activation in regions associated with pain perception including the anterior Insula (antIns). Still, heat pain revealed a stronger and more widespread activation pattern especially in the dorsal posterior Insula (dpIns) bilaterally. Interestingly, in the dpIns heat pain revealed an increase of the BOLD response across the stimulus duration with a peak in the second stimulus half (‘late’ pain) whereas BOLD activation for pressure pain peaked in the first stimulus half (‘early’ pain). Furthermore, an interaction of stimulus intensity and pain modality was evident behaviourally, where lower-intensity pressure stimuli were rated as more painful than lower-intensity heat stimuli (VAS 30, 50). This pattern was reversed at the highest stimulus intensity (VAS 70).

Conclusions: Overall, our findings suggest that there are some differences in brain activation patterns and perceived intensity of thermal heat and cuff pressure pain.
