

## **ROLE OF PREOPTIC AREA IN LPS-INDUCED BEHAVIORAL FEVER IN THE TOAD *BUFO PARACNEMIS***

*K.C. Bicego-Nahas and Luiz G.S. Branco, Faculty of Odontology of Ribeirao Preto and Faculty of Medicine of Ribeirao Preto -University of Sao Paulo, Ribeirao Preto, SP, Brazil.*

Preoptic-anterior hypothalamus (POA) plays an important role in thermoregulation in vertebrates. In mammals, it is known that fever can be initiated by a number of agents (including endotoxin - LPS). These are believed to release endogenous pyrogenic cytokines that may act on POA, which then stimulates the neural pathways inducing autonomic and behavioral responses that raise Tb. Amphibians, as all ectotherms, regulate their Tb primarily by behavior. Recently, we demonstrated that LPS causes behavioral fever in the toad *Bufo paracnemis* but the site in the central nervous system (CNS) involved in this response has not been assessed. Therefore, we tested the hypothesis that lesion of POA impairs behavioral fever induced by LPS in *Bufo paracnemis*. Toads were anesthetized in an aqueous solution of ethyl-*m*-aminobenzoate (submergence in 0.3% MS-222) and electrolytic lesions of POA were made. Measurements of preferred Tb were performed using a thermal gradient 4 days after surgery. After a control period of about 24 hours, control, sham-operated or lesioned toads were injected into the lymph sac with LPS (200 µg/kg) or pyrogen-free saline. Preferred Tb was monitored for 15 hours after injections. During control period, mean Tb was  $23.9 \pm 1.5^{\circ}\text{C}$  and LPS caused a significant increase in Tb from the 8<sup>th</sup> to 11<sup>th</sup> hours after injection ( $P < 0.05$ ). There was no significant difference between control and sham-operated groups. Unilateral lesion of dorsal POA resulted in a delayed fever (from the 10<sup>th</sup> to 15<sup>th</sup> hours after LPS injection). Unilateral lesion of the ventral POA abolished behavioral fever induced by LPS. These results indicate that POA, especially the ventral portion, is an important area of the CNS of toads involved in behavioral fever.

---

Financial support: FAPESP, CNPq and PRONEX

Corresponding author - Luiz G. S. Branco, Ph.D. branco@forp.usp.br