

## General Neuroendocrinology-Pituitary Axis Function & Dysfunction (Clinical)

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### Effects of Cabergoline at Zebrafish Development

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- Abstract

#### **Abstract:**

Dopamine neurotransmission is a well-established therapeutical target in the treatment of several diseases. Cabergoline (CAB), a D2 agonist has been used for many years in the treatment of Prolactinomas and Parkinson's Disease. In prolactinoma's patients, the use of CAB for fertility improvement and during pregnancy remains controversy. Recently CAB was associated with side effects including cardiac disturbances. Zebrafish is a established vertebrate model used for developmental screenings since 1950, and its developmental transparency, easy maintenance, fast growth and efficient absorption of substances in the water, has made him a model for teratogenic and embriotoxicological studies. In this study zebrafish embryos were exposed to CAB (0, 0.1, 1.0 and 10.0 mg/L in system water) for the initial 48hpf. Embryotoxicological evaluation showed no effect on survival and hatching efficiency between groups. The heart rate was diminished in 10.0 mg/L CAB-treated animals at 48hpf but returned to control levels at 10hpf. Apoptotic cell death on heart tissue was evaluated using acridine orange followed by ImageJ quantification of fluorecence at 48hpf and was also increased in 10.0 mg/L-treated animals. At 10dpf, despite the lack persistent effects on heart rate, animals treated with CAB at 10.0mg/L showed altered exploratory capacity, traveling longer distances and making significant more body rotations. All experiments was made in triplicates with 10 embryos/larvae each treatment and statistical analysis was performed with ANOVA followed by Tukey post-hoc ( $p < 0.05$ ). These results demonstrate a deleterious effect of CAB on cardiac development of Zebrafish. A possible comparison with human cardiac disturbance may occur and molecular mechanisms behind those effects need to be investigated.

Nothing to Disclose: LRN, CHS, NES, MV, MAC

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