# Transient effects of chemotherapy for testicular cancer on mouse behavior

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## ABSTRACT

Current treatment of testicular cancer including unilateral orchiectomy and chemotherapy is curative for most patients. Nevertheless, in observational studies it is associated with depression, anxiety, fatigue and cognitive impairment. It is unclear whether these side effects are caused by chemotherapy, hemicastration or the disease itself.

The aim of our study was to describe behavioral effects of hemicastration and multiagent chemotherapy used for the treatment of testicular carcinomas in mice.

Adult male mice randomly divided into four groups (control, chemotherapy, hemicastration and hemicastration with chemotherapy) were treated with three cycles (21 days each) of bleomycin, etoposide and cisplatin. At the end of the third cycle mice underwent a battery of behavioral tests assessing locomotor and exploratory activity, anxiety as well as depression-like behavior and memory. To assess potential late onset effects of chemotherapy, the animals underwent the same battery of behavioral tests 3 months after the end of treatment.

Administration of multiagent chemotherapy led to lower locomotor- and exploratory activity (by 26% and 75%), higher anxiety-like behavior (by 38%) and worse spatial memory (by 54%) in mice tested immediately after the treatment. These adverse behavioral effects were not observed three months later. Hemicastration did not affect most of the observed behavioral outcomes.

In conclusion, adverse behavioral effects induced by chemotherapy in mice are transient and these effects disappear later in life. Further studies are needed to elucidate the mechanisms responsible for the observed effects.

## CONTACT

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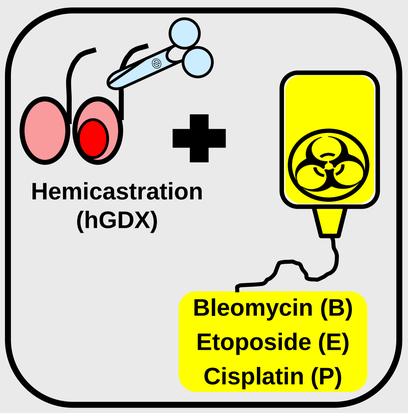
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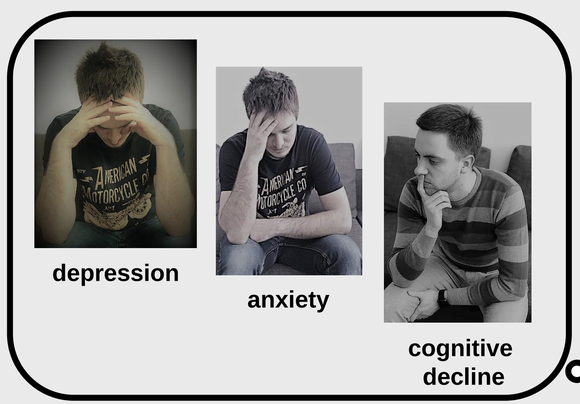
## INTRODUCTION



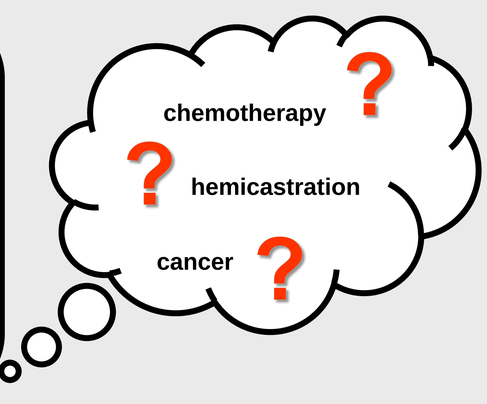
Testicular cancer




Treatment




Disadvantages of the treatment

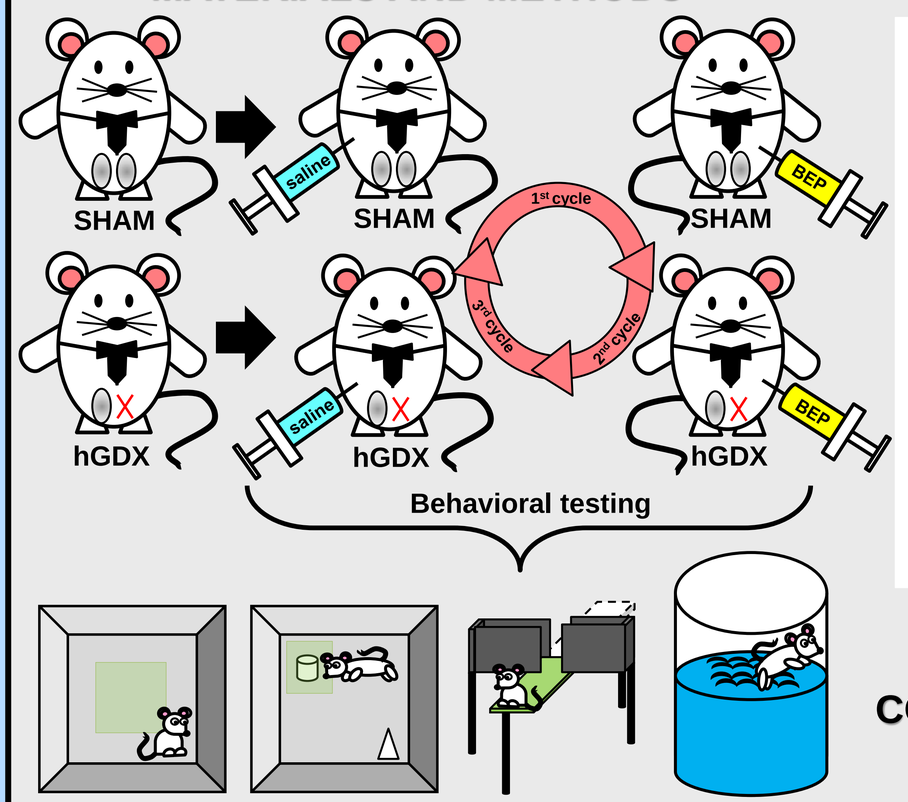



Cause
of behavioral changes

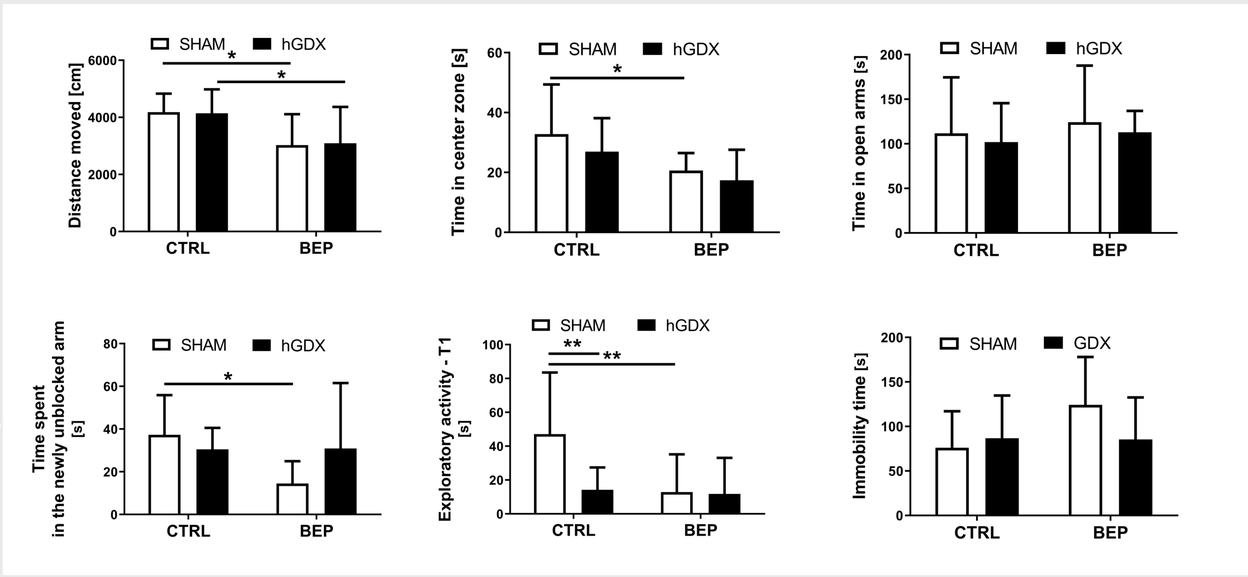
**AIM**

**To describe behavioral effects of hemicastration and multiagent chemotherapy used for the treatment of testicular carcinomas in laboratory mice.**

## MATERIALS AND METHODS




## RESULTS




## CONCLUSIONS

**hGDX** ➡ ✘ locomotor activity ↓, ↓ exploratory activity ✘, ✘ anxiety-like behavior ↑, ✘ depression ✘, ✘ memory ↓ ⬅ **BEP**