

## Letter to Editor

# Does cadmium cause more damage to the sperm neck than other sperm areas?

Asrin Babahajian<sup>1</sup>, Abazar Yari<sup>2\*</sup>

1- Liver and Digestive Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.

2- Department of Anatomy, Faculty of Medicine, Alborz University of Medical Sciences, Karaj, Iran.

\*Corresponding author: Abazar yari, Department of Anatomy, Faculty of Medicine, Alborz University of Medical Sciences, Karaj, Iran. Tel/Fax: +982188622709; Email: [abazaryari@yahoo.com](mailto:abazaryari@yahoo.com)

### Dear Editor:

The men's reproductive impairment following exposure to heavy metals is one of the most serious concerns in today's industrial societies. Heavy metals are responsible for invasive injuries to the male reproductive system at the cellular and structural levels. One of Heavy metals is cadmium that release through industrial activity in the form of cadmium oxide, cadmium chloride, or cadmium sulphide into environment (1). Many studies have shown the effects of cadmium toxicity on testicular and sperm parameters (2-4). In a recent our study with doses of 2 and 4 mg/kg in adult male rats, we found that high percentage of sperm from the neck region was divided into two segments, which was directly related to the cadmium dose. This observation leads to the question that, why injury to sperms occurs from the neck region? Does the neck region have a specific molecular and cellular structure that is sensitive to cadmium? Undoubtedly, answering this question without designing and performing in vitro studies in order to investigate the relationship between molecular and cellular structure of the sperm neck and cadmium toxicity is not feasible. If this question is answered, it's a very important point in counteracting the cadmium toxicity for sperm. Therefore, a study design to investigate this relationship is recommended.

### 1. Acknowledgment

None.

### 2. Conflict of interest

There was no conflict of interest.

### 3. Funding

None.

### 4. 9. Author contribution

All authors passed four criteria for authorship contribution based on recommendations of the International Committee of Medical Journal Editor.

### 5. Reference

1. Zhao L-l, Ru Y-f, Liu M, Tang J-n, Zheng J-f, Wu B, et al. Reproductive effects of cadmium on sperm function and early embryonic development in vitro. *PLoS One*. 2017;12(11):e0186727.
2. Asadi MH, Zafari F, Sarveazad A, Abbasi M, Safa M, Koruji M, et al. Saffron improves epididymal sperm parameters in rats exposed to cadmium. *Nephrourol Mon*. 2014;6(1).
3. Yari A, Asadi MH, Bahadoran H, Dashtnavard H, Imani H, Naghii MR. Cadmium toxicity in spermatogenesis and protective effects of L-carnitine in adult male rats. *Biol Trace Elem Res*. 2010;137(2):216-25.
4. Yari A, Sarveazad A, Asadi E, Raouf Sarshoori J, Babahajian A, Amini N, et al. Efficacy of *Crocus sativus* L. on reduction of cadmium-induced toxicity on spermatogenesis in adult rats. *Andrologia*. 2016;48(10):1244-52.