Indian Journal of Experimental Biology
Vol. 51, May 2013, pp. 406

Letter to Editor

Khazaei *et al.*[1] in the article entitled, "Protective effects of subchronic caffeine administration on cisplatin induced urogenital toxicity in male mice" found that caffeine recovers toxicity induced by cisplatin in kidneys, They concluded that, caffeine as an agent for reducing irreversible side effects of cisplatin and discussed three involving mechanism of this effect, antioxidant, diuretic activities and blocking organic cation transporter[1]. In this communication, I would like to highlight a few points about cisplatin nephrotoxicity. It was observed that estrogen attenuates defending property of erythropoietin against cisplatin-induced kidney toxicity in ovariectomized rats[2]. Also by using L-arginine against cisplatin-induced nephrotoxicity, it was observed that L-arginine had ameliorative properties against cisplatin-induced renal toxicity in male rats, however it intensifies the induced injury in female rats[3], suggesting a gender related difference in rat model of cisplatin nephrotoxicity. Since, the status of sex in cisplatin-kidney toxicity is not well understood, Haghighi *et al.*[4] conducted an experiment on rat model of cisplatin toxicity and observed that losartan as an angiotension receptor blocker may prevent cisplatin kidney toxicity in male rats, while it intensifies the cisplatin-tubular injury in female rats. It was concluded that, gender difference of cisplatin nephrotoxicity may be related to the renin-angiotensin system receptors in the kidneys[4-10]. In addition, Nematbakhsh *et al.*[11] recently reported that, vitamin E, vitamin C, or losartan have no ameliorative effects against cisplatin-renal toxicity in presence of estrogen in ovariectomized rat model of cisplatin toxicity, which is in agreement with previous studies. Hence, it is well established that there is a gender difference in the cisplatin-renal toxicity in rat model. While, it is well recognized that some conditions which lead to chronic kidney diseases are gender related too[5-10], only few studies are there on gender difference in cisplatin-kidney toxicity. However, there is a need to investigate mechanisms which play role in cisplatin renal-toxicity especially on gender difference[10-12]. To explore the factor of gender difference in cisplatin nephrotoxicity, further experimental rat model or clinical studies are required.

Conflict of interest

The author declared no competing interests.

References

1 Khazaei M, Bayat PD, Ghanbari A, Khazaei S, Feizian M, Khodaei A & Alian HAS, Protective effects of subchronic caffeine administration on cisplatin induced urogenital toxicity in male mice, *Indian J Exp Biol,* 50 (2012) 638.

2 Pezeshki Z, Nematbakhsh M, Mazaheri S, Eshraghi-Jazi F, Talebi A, Nasri H, Safari T, Mansouri A & Farzaneh A. Estrogen abolishes protective effect of erythropoietin against cisplatin-induced nephrotoxicity in ovariectomized rats, *ISRN Oncology*, 2012, doi:10.5402/2012/890310.

3 Eshraghi-Jazi F, Nematbakhsh M, Nasri H, Talebi A, Haghighi M, Pezeshki Z, Safavi T & Ashrafi F. *J Res Med Sci*, 16 (2011) 1389.

4 Haghighi M, Nematbakhsh M, Talebi A, Nasri H, Ashrafi F, Roshanaei K, Eshraghi-Jazi F, Pezashki Z & Safari T. The role of angiotensin II receptor 1 (AT1) blockade in cisplatin-induced nephrotoxicity in rats: Gender-related differences, *Ren Fail*, 34 (2012) 1046.

5 Ghorbani A, Omidvar B & Parsi A, Protective effect of selenium on cisplatin induced nephrotoxicity: A double-blind controlled randomized clinical trial, *J Nephropathol*, 2 (2013) 129.

6 Nematbakhsh M, Ashrafi F, Pezeshki Z, Fatahi Z , Kianpoor F, Sanei MH & Talebi A, A histopathological study of nephrotoxicity, hepatoxicity or testicular toxicity: Which one is the first observation as side effect of cisplatin-induced toxicity in animal model, *J Nephropathol*, 1(2012) 190.

7 Solati M & Mahboobi HR, Paraoxonase enzyme activity and dyslipidemia in chronic kidney disease patients, *J Nephropathol*, 1(2012) 123.

8 Kam-Tao Li PK, Burdmann EA & Mehta RL, Acute kidney injury: Global health alert, *J Nephropathol*, 2(2013) 90.

9 Rafieian-Kopaei M, Nasri H, Nematbakhsh M, Baradaran A, Gheissari A, Rouhi H, Ahmadi-Soleimani SM,Baradaean-Ghahfarokhi M,Ghaed-Amini F & Ardalan ,MR. Erythropoietin ameliorates gentamicin-induced renal toxicity: A biochemical and histopathological study, *J Nephropathol*, 1(2012) 109.

10 Alhamad T, Blandon J, Meza AT, Bilbao JE & Hernandez GT, Acute kidney injury with oxalate deposition in a patient with a high anion gap metabolic acidosis and a normal osmolal gap, *J Nephropathol*, 2(2013) 139.

11 Nematbakhsh M, Pezeshki Z, Eshraghi-Jazi F, Ashrafi F, Nasri H, Talebi A, Safari T,Haghighi M & Mansouri A. Vitamin E, vitamin c, or losartan is not nephroprotectant against cisplatin-induced nephrotoxicity in presence of estrogen in ovariectomized rat model, *Int J Nephrol*, 2012 (2012) 284896.

12 Nematbakhsh M, Talebi A, Nasri H, Safari T, Dolatkhah S, Ashrafi F, Eshraghi-Jazi F,Pezashki Z,Ebrahimian S,Tooyserkani M& Hassan-Ajili S.Some evidence for sex-based differences in cisplatin-induced nephrotoxicity in rats, *Clin Exp Med Letters*, 53 (2012) 31.

Hamid Nasri
Department of Nephrology, Division of Nephropathology
Isfahan University of Medical Sciences, Isfahan, Iran
Telephone: +98 311 220 8081; Fax: +98 311 223 5043
E-mail: hamidnasri@med.mui.ac.ir