$_2$ is nephrotoxic, and the preventive effect of zinc can be related to the lower intestinal Hg absorption due to stomach Hg retention.

Keywords: Nephrotoxicity; Inorganic mercury; •-ALA-D; Lactate dehydrogenase

Introduction

Mercury toxicity, as well as its deposition in tissues, depends on the chemical form (inorganic or organic), time and route of exposure [1]. The main route of exposure to mercury is oral via, in view of the large consumption of contaminated food and water [2,3].

The oxidized form of mercury, Hg^{2+}, presents as the

Exposure to metals

Animals were distributed in four groups (N=4/group), pretreated by gavage for five days with 0.9% NaCl (saline solution) or $ZnCl_2$ (27 mg/kg/day), and after, treated by gavage for more five subsequent days with saline or $HgCl_2$ (5 mg/kg/day). Metals were dissolved in saline solution and administered by gavage at a volume of 1 mL/kg body weight. Zn and Hg doses were selected according to previous studies performed by our research group [7-13,20].

Tissue preparation

Twenty-four hours after the last administration of saline or $HgCl_2$, rats were weighed and killed by decapitation. Total blood samples were collected from the body and centrifuged at 1,050 g for 10 min at 4°C to obtain the serum, which was used for determination of urea and creatinine levels and alanine aminotransferase (ALT), alanine aspartate aminotransferase (AST) and lactate dehydrogenase (LDH) activity. For the δ-aminolevulinic acid dehydratase (δ-ALA-D) activity assay, stomach and intestine were quickly removed, placed on ice and homogenized in 5 and 7 volumes of NaCl (150 mM, pH 7.4), respectively. The homogenate was centrifuged at 8,000 g for 30 min at 4°C and the supernatant fraction (S1) was used in the enzyme assay. Furthermore, the stomach and intestine were used in the determination of mercury levels.

ALT, AST and LDH activity and creatinine and urea levels

Enzymes activities and creatinine and urea levels were determined by using a Labtest commercial kit as describe in Peixoto and Pereira [11].

δ-ALA-D activity

Enzymatic activity was assayed according to Sassa [25] by measuring the rate of product (porphobilinogen - PBG) formation, as previously described by Peixoto et al. [12]. Enzyme activity was expressed as nmol PBG/h/mg protein. Protein concentration was determined by Bradford method [26] using bovine serum albumin as a standard.

Determination of metal levels

Metal analyses were carried out using a Model AAS EA 5 atomic absorption spectrometer (Analytik Jena, Jena, Germany) equipped with a transversely heated graphite tube atomizer with pyrolytic coated tubes as described by Peixoto et al. [13] and Oliveira et al. [27].

Statistical analysis

Results were analyzed by one-way analysis of variance (ANOVA

the technique were considered, for statistical analysis, as containing 0.05 µg of metal/g of tissue, which was the minimum measurable quantity

Table 2: δ

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