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Chelation of Lead by Combining Deferasirox and Deferiprone in rats

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The Present research was conducted to evaluate the ability of Deferasirox and Deferiprone (L1) chelators as single and combined therapies in removing lead from biological system. Lead at two doses of 20 (low dose drinking of lead) and 40 mg/kg (high dose drinking of lead) were given to rats. After 60 days of lead administration, chelation therapy was carried out after lead application, for the period of a week. In these experiments, animals were divided into several groups, before chelation therapy group (control), without chelation therapy group and chelation therapy with Deferasirox and Deferiprone (L1) and combined groups. We found abnormal clinical signs in animals after lead administration. Also the body weights of all animals were significantly decreased. Chelators were given after lead application. Chelators were given as orally (Deferasirox and L1) as mono or combined therapies. After chelation therapy, these rats were anesthetized with ether vapours and immobilized by cervical dislocation. Animals were sacrificed by exsanguinations from abdominal aorta; and kidneys, spleen, liver and heart samples were collected, weighed and dried for determination of lead content. Lead and iron concentrations in various tissues were determined by graphite furnace and flame atomic absorption spectrometry methods respectively. After chelation therapy, the Iron and lead levels showed that lead levels present in tissues were significantly reduced and the iron concentration returned to the normal level and the symptoms also reduced. Due to these considerations, combination therapy with two chelators causes higher efficacy and lower toxicity by comparison to monotherapy.

References:

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