The Possibility of reducing the harmful side effects of the anti-cancer drug Cisplatin on the kidneys by using both D-penicillamine and Selenium

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abstract

Platinum compounds are used to treat various types of cancer. One of these compounds is Cisplatin, which is found to be the strongest, most active and effective of these compounds, however clinical studies have confirmed that this drug has serious complications and harmful side effects. This study include an estimate of the percentage of deaths, the rate of change in body weight, the percentage of (kidney weight/body weight), as well as the rates of kidney function in the animals used. The results indicated that injecting the therapeutic dose of Cisplatin every four weeks within the peritoneal cavity has caused a high mortality rate. It reached 90% after the second dose, and also there was a decrease in the weights of the animals, and an increase in the percentage of (kidney weight/body weight), as for the bioaccumulation of platinum in the different tissues, an increase in the concentration of platinum in all the studied tissues was found as a result of the injection of Cisplatin, throughout the period of the experiment, and it was found that the kidney is the target organ for the accumulation of platinum, which in turn led to a defect in the renal function. The histological examination also showed some pathological changes in the kidney tissue of experimental animals working with Cisplatin, and these changes increased in severity with the increase in the number of injected doses of Cisplatin. It was also found in this research that the two antagonist doses of D-penicillamine and selenium combined, in addition to the therapeutic dose of Cisplatin, were injected with the two antagonists used in this research, and had succeeded in preventing the occurrence of adverse side effects on the kidneys resulting from the injection of Cisplatin alone. As it provides a protective effect against it, therefore this research recommends that this work be extended by other researchers. To study the effect of Cisplatin dose on cancer, in addition to two anti-doses of D-penicillamine and selenium; this research gives hope of avoiding the harmful side effects of this potent drug, which is to reduce its severity in patients.