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Activities of antioxidant enzymes after amifostine application during cyclophosphamide anticancer therapy

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Cyclophosphamide, an alkylating compound, used in chemotherapy is metabolized with free radical formation. The potent scavenger of oxygen free radicals acting selectively in normal tissues is amifostine. This paper reports data on the effect of amifostine on the rat liver and lung antioxidants enzymes activity after cyclophosphamide injection. Cyclophosphamide causes a decrease in the liver Cu,Zn-SOD, glutathione peroxidase (GSH-Px) and glutathione reductase (GSSG-R) activities and an increase in catalase (CAT) activity. At the same time this compound causes a decrease in lung Cu,Zn-SOD and CAT, but it does not change GSSG-R activity and causes an increase in GSSG-R activity. Administration of cyclophosphamide with amifostine causes smaller changes in activities of the examined enzymes. In conclusion, amifostine partially protects cells from cyclophosphamide and its metabolites.