

## CARTAS AL EDITOR

### Radioprotective Action of Cysteamine with respect to Radiation Produced Alterations in the Intestinal Absorption of Glucose

Cysteamine possesses an excellent radioprotective action toward X-radiation effects on the intestinal absorption of glucose (1, 3). This action takes place when cysteamine is present in the lumen of the intestine during irradiation (1), as well as when injected intraperitoneally a few minutes before irradiation (3). It was of interest to know the minimum amount of injected cysteamine necessary to obtain a complete radioprotective effect under the

conditions and observation time used in the last of these publications (3).

Radiation with 600 r on whole rat bodies was carried out and then the capacity of glucose absorption was determined *in vivo* by techniques and under conditions described in a previous work (3). Cysteamine is administered intraperitoneally 10 minutes before irradiation. The absorption was measured 96 hours after

TABLE I

Radioprotective effect of cysteamine. Intestinal absorption of glucose in total body irradiated rats (600 r) at 96 hours.

Glucose 2.77 mM with NaCl at 9‰ (154 meq Na<sup>+</sup>/l). Absorption time: 20 minutes. Intraperitoneal cysteamine 10 minutes before irradiating. Irradiation on the animal without anaesthesia.

N.º animals	Cysteamine mg/100 g	Successive absorptions (µM/cm)			
		1st Abs.	2nd Abs.	3rd Abs.	4th Abs.
6*	10.0	0.32 ± 0.02	0.30 ± 0.02	0.31 ± 0.02	0.31 ± 0.01
6**	—	0.19 ± 0.03	0.18 ± 0.01	0.17 ± 0.03	0.18 ± 0.02
6	10.0	0.29 ± 0.02	0.31 ± 0.03	0.29 ± 0.02	0.31 ± 0.03
6	5.0	0.33 ± 0.02	0.32 ± 0.03	0.32 ± 0.02	0.33 ± 0.03
6	3.5	0.46 ± 0.04	0.44 ± 0.03	0.44 ± 0.03	0.43 ± 0.02
6	2.5	0.22 ± 0.03	0.21 ± 0.03	0.22 ± 0.03	0.21 ± 0.02
6	1.0	0.20 ± 0.02	0.19 ± 0.02	0.19 ± 0.02	0.19 ± 0.02

\* Animals without irradiation.

\*\* Animals irradiated but not received cysteamine.

wards since the inhibition was most noticeable then.

The results of the experiments are listed in Table I. Different groups of 6 rats each received varying amounts of irradiation: one group was irradiated but did not receive cysteamine, another received cysteamine but was not irradiated, another acted as control by not receiving neither cysteamine nor radiation.

The simple injection of cysteamine doesn't effect the active transport of glucose. Irradiation inhibits almost 45 % of the active transport. Cysteamine given at 10 and 5 mg/100 g completely protects from the inhibition of absorption. The radioprotective action is lacking with doses of 1 and 2.5 mg/100 g.

The 3.5 mg/100 g dose of cysteamine is specially interesting since at 96 hours the intestinal absorption of glucose augments 40 % instead of inhibiting. This results coincides with the effect of a 100 r dose at 96 hours after irradiation (2), indicating that this amount of cysteamine makes the effect of 600 r equivalent to 100 r without cysteamine. A dose reduc-

tion factor (DRF) of about 6 (600/100) is implied.

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### References

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