

Effects of oropharyngeal/buccal insulin on glucose levels in alloxan-induced diabetic rabbits: clinical implications.

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Abstract:

The effect of oropharyngeal administration of insulin lente (BP, USP) on alloxan-induced diabetic rabbits was investigated. In mild cases of hyperglycaemia (below 500 mg/dl), a buccal dose of 100 IU was able to produce significant reduction in blood glucose levels over seven hours, as compared with diabetic animals during the same period. As much as 60% reduction in glucose level from the starting level could be achieved. However, at very high levels of hyperglycaemia (above 500 mg/dl), this regimen failed to produce normoglycaemia although it rendered the animal tolerant to high levels of glucose. This mode of administration of insulin did not produce hypoglycaemia in any of the animals: the blood levels in the mildly diabetic animals were reduced to normoglycaemia without progressing into the hypoglycaemic state. The administration of insulin to normoglycaemic rabbits by this route did not produce any reduction in glucose levels. This preliminary report suggests that a noninvasive oropharyngeal route may be an alternative for the clinical management of insulin and non-insulin dependent diabetes mellitus in man.