P R E F A C E

During the past few decades the number of biologically active polypeptides, that have been isolated from, or claimed to be present in the submandibular gland increased rapdily reaching at least 27. The richest source for most of these factors proved to be the submandibular gland of the male mouse. However, several of these factors occur in the submandibular glands of other species, and they display phylogenetic structural conservation which suggests that their presence in the submandibular gland is not an inconsequential "accident" of evolution. Chemistry and biology of some of these polypeptides like epidermal growth factor, nerve growth factor, renin and kallikrenin have been extensively studied and reviewed; but regarding remaining factors not much attention has been paid though existence of some of these factors like insulin, glucagon, mesodermal growth factor and many others has long been accepted.

The presence of glucagon as a hyperglycemic factor with molecular weight larger than pancreatic glucagon has been proposed by number of workers. They have studied effect of isolated salivary glucagon or injected submandibular gland extract intravenously to find out blood glucose level as well glycogen content in the liver. Efforts have also been made to demonstrate histochemically immunoreactive glucagon in the submandibular gland. Hypoglycemic effect alter the ligation of submandibular

gland of diabetic rat has also been tested. In these effects some of them were able to show hyperglycemic effect of salivary secretion, some were not. When we went through the literature we found that submandibular gland secretion has hyperglycemic activity as far as blood glucose level is concerned but the factor from submandibular gland secretion failed to show glycogenolysis in liver.

Tahara and his associates in Osaka University, Japan are actively engaged in salivary gland research and according to them at the time of isolation of glucagon large amount of proteases are isolated, which may be degrading glucagon making it inactive.

We know that pancreatic glucagon activates the glycogenolysis in liver and not in the muscles, which are the second largest source in the body. Taking this into account we have decided to study effect of salivary secretion in vivo on carbohydrate metabolism of muscles. Number of Biologically active polypeptides are synthesized and secreted from GCT of submandibular gland and therefore glucagon must have been present in the same tubules since 1940 it has been proved that GCT cells are under the control of hormones like androgen, thyroid and adrenocorticoid. Differentiation of GCT Cells start taking place from 40th day upto 90th day of postnatal development of mice.

In the present investigation we have studied glycogen, protein, alkaline phosphatase and lactate dehydrogenase in muscles of 2 months and 3 months of mice in the presence and absence of submandibular gland secretion.

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