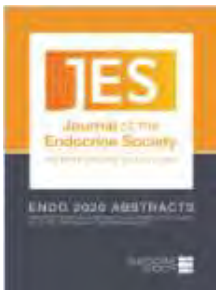
SAT-650 Novel Insights into the Entero-Insular Axis in Fibrocalcific Pancreatic Diabetes: An Isoglycemic Intravenous Glucose Infusion (IIGI) Study from India



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Abstract

In tropical countries including India, one of the common causes for young onset diabetes mellitus (DM) is “Fibro Calcific Pancreatic Diabetes” (FCPD) characterized by progressive pancreatic destruction. Despite this, glucagon has been found to be elevated in FCPD **(1,2)**. The L-Cells in gut produce glucagon like peptide- 1 (GLP-1) and oxyntomodulin which are products of glucagon gene, thus raising probability of extra-pancreatic glucagon in FCPD. To test this hypothesis we performed 75grams oral glucose tolerance test (OGTT) followed by IIGI on separate days on nine FCPD and six healthy subjects. The latter procedure ensured matched glucose levels achieved during OGTT. Glucagon and incretins were measured at nine pre-specified time points. We found an increase in L-Cell products: GLP-1 (44.5±9.2pM vs. 12.4±4.5pM, p=0.02) and Oxyntomodulin (1252±350pg/ml vs. 859.8±165pg/ml, p=0.43) along with significant rise in glucagon during OGTT (98.8±13pg/ml vs. 63.4±7pg/ml, p=0.03) despite flat basal & stimulated C-peptide (0.43±0.14ng/ml and 1.09±0.3ng/ml, respectively) and Pancreatic polypeptide (12.3±0.0pg/ml and 14.7±1.7pg/ml, respectively) levels.

Paradoxically, gastric inhibitory polypeptide (GIP) levels were low in FCPD (106.8±40.3pg/ml vs. 557.8±96.4pg/ml, p=0.003). We speculate that the hyperglucagonemia is extra-pancreatic (L-Cell) in origin and may also contribute to the dichotomous incretin response in FCPD.

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Issue Section:

LIPIDS, OBESITY AND METABOLIC DISEASE