INCREASED RESTING ENERGY EXPENDITURE AND LOWER RESPIRATORY QUOTIENT IN PATIENTS WITH CHRONIC PANCREATITIS HAVING PANCREATIC EXOCRINE INSUFFICIENCY

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Abstract | Discussion Forum (0)

Chronic pancreatitis (CP) results inpancreatic exocrine insufficiency (PEI) and malnutrition apart from recurrent pain. Studies have shown that there may be increased resting energy expenditure (REE) in CP that may result in malnutrition. The changes in energy metabolism (REE) and substrate utilization (Respiratory quotient) are known to impact clinical outcomes in various chronic diseases The study aimed to measure REE and RQ in patients with CP and their relationship with PEI.

We prospectively recruited patients of CP with PEI (n=30), CP without PEI (n=31) and healthy controls {HC (n=32)} between January 2020 and March 2023. The subjects were screened for inclusion at the Pancreas Clinic of the Gastroenterology and Human Nutrition Unit, AIIMS, New Delhi. PEI was measured by fecal elastase-1 assay. The REE and RQ were measured using indirect calorimetry (IC).The body composition was measured by multiple-frequency segmental bioelectrical impedance (BIA) analysis (ACCUNIQ 720). Sarcopenia was assessed by abdominal muscle mass by CT with the Asian Working Group for Sarcopenia 2019 cutoffs.

The majority of subjects were males (66.5%) with a mean age of 29.16±10.2 years. Fecal elastase varied among 3 groups, with patients of CP with PEI having 32.5 (15-82) (µg/g stool). Patients of CP had increased REE irrespective of PEI ($p<0.001$). The patients with PEI had lower RQ (0.79±0.03) compared to patients with CP without PEI (0.82±0.03) and HC (0.83±0.02), underlying the effect of exocrine function on energy utilisation. The percentage of energy generated from fat in patients with PEI was significantly higher (54.05±12.0%) compared to HC and the lowest form of carbohydrates (22.6±12.42%). Both groups of patients with CP were utilizing the least percentage of energy from protein compared to HC

Individuals with PEI had significantly lower fat-free mass (FFM) and skeletal lean mass (SLM) when compared to those without PEI and healthy controls. These findings provide insights into the potential impact of impaired exocrine pancreatic function on body composition. We also observed that this group of patients with PEI not only have altered energy metabolism but also a higher percentage of patients with sarcopenia assessed by abdominal muscle mass by CT.

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Conclusion:

These findings highlight the significant impact of impaired exocrine function on energy utilisation and body composition, underscoring the need for early nutritional assessment and targeted metabolic support in these patients.