PTU-079 MISINTERPRETATION OF REE DATA IN CHILDHOOD

doi:10.1136/gut.2011.239301.207

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Introduction Inflammation is thought to place a metabolic burden on the body which can be detected by raised resting energy expenditure (REE). Increased REE unmatched by dietary intake is frequently implicated as a cause of weight loss, poor nutritional status and growth failure in children with Crohn's disease. However, there is equivocal evidence to support this in part due to ways in which REE is expressed. Our aim was to explore the relationships between different expressions of REE relative to body composition in children with Crohn's disease

Methods Children with Crohn's disease recruited from the regional paediatric gastroenterology unit were studied between March 2009 and July 2010. REE was measured by

indirect calorimetry, fat free mass (FFM) was derived from weight measurement and estimates of fat mass from skinfold thicknesses.

Results 60 children were studied (39 male). Mean age 13 (range 6 to 17) years. There was a clear relationship between REE and weight r =0.83; p =0.00 and also between REE and FFM r=0.83; p =0.00. A common expression in published research is to correct REE for body size by expressing REE/kg FFM. REE/kg FFM was negatively associated with FFM r=-0.63; p =0.00. Thus children with lower FFM would have highest REE values. An alternative approach has been employed expressing REE/kg $FFM^{0.5}$. In this cohort no relationship between REE/kg $FFM^{0.5}$ and fat free mass was evident r=−0.07; p=0.6.

Conclusion These data highlight a well known principle that body size is related to REE. It also illustrates that expressing REE/kg FFM does not completely correct REE data for body size as there is still a significant relationship between the two variables. Expressing data as REE/kg $FFM^{0.5}$ does correct adequately for body size. Review of the literature shows that three studies have found raised REE/kg FFM in children with Crohn's compared to controls and concluded that REE is higher in children with controls. However in all three studies the control groups were heavier than the Crohn's groups. Thus REE/kg FFM is a misleading way to present REE data.

Competing interests None.

Keywords Inflammatory Bowel Disease, Paediatrics, Resting energy expenditure, Southampton, UK.