290

RESTING ENERGY EXPENDITURE IN PATIENTS WITHCIRRHOSIS: AN INDIVIDUAL PATIENT DATA META-ANALYSISOF INDIRECT CALORIMETRY VERSUS ESTABLISHED ANDDERIVED PREDICTION EQUATIONS

Ana Teresa Limon-Miro[1,2], Clive D. Jackson[3], Tannaz Eslamparast[1], Hisami Yamanaka-Okumura[4], Lindsay D.Plank[5], Christiani Jeyakumar Henry[6], Angela M. Madden[7], Livia Garcia Ferreira[8], Evangelos Kalaitzakis[9,10], César Prieto De Frías[11], Anne Wilkens Knudsen[12], Leah Gramlich[1], Maitreyi Raman[13], Cathy Alberda[14], Dawn Belland[15], Vanessa Den Heyer[15], Marsha Y Morgan[16] and Puneeta Tandon[1], (1)

Department of Medicine, University of Alberta, (2)Medicine, University of Alberta, (3)Department of Neurophysiology, Royal Free Hospital, Royal Free London NHS Foundation Trust, (4)Department of Clinical Nutrition and Food Management, Institute of Biomedical Sciences, Tokushima University Graduate School, (5)Department of Surgery, University of Auckland, (6)Department of Biochemistry, University of Singapore, (7)School of Life and Medical Sciences, University of Hertfordshire, (8)Surgery Postgraduate Program, Medical School, Universidade Federal De Minas Gerais, (9)Gastro Unit, Division of Endoscopy, Copenhagen University Hospital, (10)Department of Gastroenterology, University Hospital of Heraklion, University of Crete, (11)Department of Gastroenterology, Clínica Universidad De Navarra, (12) Medical Division and Medical Unit, Nutritional Division, Copenhagen University Hospital Hvidovre, (13) Deparment of Medicine, Division of Gastroenterology, University of Calgary, (14)Royal Alexandra Hospital, Alberta Health Services,(15)University of Alberta Hospital, Alberta Health Services Nutrition Services, (16)Division of Medicine, UCL Institute for Liver and Digestive Health, Department of Medicine, Royal Free Campus, University College London

Background: Malnutrition is associated with adverse clinical outcomes in patients with cirrhosis. Accurate assessments of energy requirements are needed to optimise dietary intake. Resting energy expenditure (REE), the major component of total energy expenditure, can be measured using indirect calorimetry (mREE) or estimated using prediction equations (pREE). This study aimed to evaluate the concordance between mREE and pREE in patients with cirrhosis. **Methods:** Individual data were available for 900 patients with cirrhosis (mean [±1SD] age 55.7±11.6 yr; 70% men; 52% Asian descent) and 282 healthy controls (mean age 36.0±12.8 yr; 52% men; 18% Asian descent). Metabolic status was classified using thresholds derived from the mean±1SD of the mREE in healthy control populations. Logistic regression modelling was used to determine if metabolic status could be predicted. The mREE in both patients and controls were compared to estimates of the REE predicted using the Harris-Benedict, Mifflin and Schofield equations. Stepwise regression was used to derive three new prediction equations including combinations of the available data viz: age, sex, ethnicity, body composition variables, and MELD score. **Results:** The mean mREE was significantly higher in patients than controls when adjusted for dry body weight (22.4±3.8 *cf.* 20.8± .6 kcal/kg/24 hr; p<0.001; there were no significant sex-related differences. the mean relative mREE was significantly higher in the Caucasian than the Asian population both as a whole (23.1±4.4 *cf.* 21.7±2.9 kcal/kg dry body weight/24 hr; p<0.001), and by sex. Overall, 37% of Caucasian and 25% of Asian patients were hypermetabolic; these patients tended to be younger, heavier and more decompensated but overall metabolic status could not be accurately predicted. The differences between the mREE and pREE using established equations were significantly discordant; thus, in the total patient population, pREE estimates ranged from 501 kcal/24 hr less to 548 kcal/24 hr more than the mREE (Table). Three newly derived prediction equations provided better estimates of mREE than the established equations but the estimates were still not clinically useful. **Conclusion:** Prediction equations for assessing REE in patients with cirrhosis have limitations in the clinical setting. Thus, REE should be directly measured whenever possible. It is clear that other, as yet unidentified, variables are important determinants of REE in this patient population.