Ashwani K Singal

University of Alabama at Birmingham, USA

Cellular bioenergetics in patients with alcoholic liver disease

Alcoholic hepatitis (AH) is associated with 40-50% mortality at one month. Liver biopsy is often needed especially for uncertain clinical diagnosis. Corticosteroids (CS) provide 50% survival benefit with their response evaluable only at one week. Defects in bioenergetics or mitochondrial oxygen consumption rate (OCR) in peripheral cells are shown in systemic diseases. We tested the hypothesis that AH patients with severe bioenergetics defects will progress to liver failure and be non-responsive to CS (NRS). After informed consent, 20 mL blood was collected from ALD patients (with or without AH) and healthy controls. Second 20 mL sample was collected at one week, from AH patients receiving CS. Monocytes and neutrophils were isolated within 30 and cellular bioenergetics and OCR (pmol/min./mcg protein) were obtained using XF96 analyzer (Seahorse Biosciences). Of 78 ALD patients (37 AH) and 40 healthy controls, OCR differed among 63 ALD patients for basal, proton leak, non-mitochondrial, and oxidative burst in monocytes and neutrophils. After controlling for age, WBC, and MELD score, basal and ATP linked OCR predicted diagnosis of AH. Bioenergetics in monocytes improved among responders but not in NRS on follow up assessment at one week of therapy. Baseline cellular bioenergetics seems a promising biomarker for personalized medicine in ALD patients for a) diagnosis of AH and b) predicting response to CS and outcome on follow up. Data in larger multicenter population are needed before accepting use of this novel biomarker in clinical practice.

Speaker Biography

Ashwani K Singal is an Associate Professor of Medicine in Division of Hepatology and Director of Porphyria Center at the UAB, Birmingham AL. His clinical research interests include alcohol and non-alcohol fatty liver disease, porphyria, and renal dysfunction in liver cirrhosis. He has over 110 publications, on editorial board of reputed journals, and research award committees of the AGA and AASLD. His research is funded from the Transplant Institute of the UAB, ACG, NIAAA and NIDDK from the NIH, and pharmaceutical industry.

e: aksingal@uab.edu

Notes: