Non-Alcoholic Fatty Liver Disease Among Pregnant Women With Metabolic Syndrome: Should Nutritional Intervention Be a Priority? A Cross Sectional Study in Rural Sri Lanka

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Objectives: Although non-alcoholic fatty liver disease (NAFLD) is the hepatic manifestation of metabolic syndrome (MetS), the prevalence data of NAFLD in MetS are scarce in literature, especially in south Asian populations. Knowledge regarding NAFLD in Mets is important as both conditions can be controlled using Nutritional interventions. This study aims to compare the proportions of NAFLD among first trimester pregnant mothers with MetS and without MetS in Anuradhapura District, Sri Lanka.

Methods: A community based cross-sectional comparative study was conducted among randomly selected first trimester pregnant mothers (less than 12 weeks of gestational age), in Anuradhapura district, Sri Lanka. Detailed clinical examination, biochemical investigations, and ultrasound scan(USS) to diagnose fatty liver were performed at the time of recruitment. MetS was defined according to the criteria by International Diabetes Federation, American Heart Association, and World Health Organization. NAFLD was categorized as fatty liver grades (FLG) 0, I, II and III by ultrasound criteria.

Results: Of the 634 mothers recruited, 30 (4.7%) were categorized as metabolic syndrome. The proportion of NAFLD among MetS group was 80% (n = 24/30) while it was 49.8% (n = 300/604) in none- MetS group. (Chi-sq = 10.4, p = 0.001). The proportion of FLG 0, FLG I, FLG II among MetS participants were 6(20%), 8(26.7%), 16(53.3%) respectively while they were 302(50.2%), 226(37.5%), 74(12.5%) respectively in non -MetS participants. (Chi-sq = 40, P < 0.000) None of the mothers were categorized as FLG III. The mean Gamma glutamyl transferase level and the Alanine aminotransferase levels were significantly higher (P < 0.025) in the MetS group, while no significant difference was observed in the Aspartate aminotransferase level. The mean dome to pole length of the liver among the MetS group was significantly higher (13.9 vs. 13.0 cm) in the MetS group. (t = 3.8, p = 0.001).

Conclusions: The proportion of NAFLD in pregnant mothers with MetS was significantly higher. Therefore, promising nutritional interventions are recommended to control the disease and minimize adverse pregnancy outcomes.

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