Non-alcoholic fatty liver disease in pregnancy, paving the way for adverse pregnancy outcome risk assessment

(Running head: NAFLD as risk factor for adverse pregnancy outcome)

Author: Ja-Young Kwon
Department of Obstetrics and Gynecology, Institute of Women's Medical Life Science, Yonsei University College of Medicine, Yonsei University Health System, Seoul, Republic of Korea

Correspondence: Ja Young Kwon, M.D. PhD.
Department of Obstetrics and Gynecology, Yonsei University College of Medicine
50-1, Yonsei-ro, Seodaemun-gu, Seoul 120-752, Korea
Tel: +82-2-2228-2245/Fax. +82-2-313-8350/ E-mail: jaykwon@yuhs.ac
ORCID ID: 0000-0003-3009-6325

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According to the current obstetrical practice, blood chemistry tests such as liver function tests or cholesterol panel are not included in the initial blood test at first prenatal visit.\(^1\) And elevated serum cholesterol or triglyceride levels in pregnant women are not taken seriously but rather considered as normal alteration in lipid physiology caused by pregnancy hormones.\(^2\) Therefore, in practice, screening for non-alcoholic fatty liver disease (NAFLD) in pregnancy is easily overlooked and disease-related pregnancy complication are often underestimated.

In the November 2021 issue of the *Clinical and Molecular Hepatology*, Jamaly et al. reported a systemic review and meta-analysis to assess the association between NAFLD and adverse maternal and fetal outcomes, which provided a compelling evidence to support that NAFLD is independently associated with gestational diabetes (GDM), and pregnancy-induced hypertension (PIH) including gestational hypertension (GHTN), preeclampsia (PE), and eclampsia(E) (OR 2.81, 1.83, 3.24, and 3.91, respectively).\(^3\) Certainly, this finding increases awareness about NAFLD in but at the same time, raises questions in the context of obstetric care. Should we consider NAFLD in the risk stratification for GDM or PE? Who should be subjected to screening for NAFLD during pregnancy or at postpartum? How should women with NAFLD, having such high metabolic risk, be managed differently during pregnancy? Is there a preventive strategy available for pregnancy-induced DM or HTN? More studies should follow to assess potential benefit, or lack of benefit, of screening a population for NAFLD when the diagnosis was made.

Care should be taken in the interpretation of the data herein. Participants enrolled in this meta-analysis were between 1992 and 2019 which is quite a wide time frame.\(^3\) During these time, new GDM screening strategy and diagnostic criteria was introduced. With the adoption of the International Association of the Diabetes and Pregnancy Study Groups (IADPSG)
diagnostic criteria for the 75-g oral glucose tolerance test (OGTT) in late 2000s, diagnostic yield for GDM has increased by 12%. Meanwhile, the American College of Obstetricians and Gynecologists (ACOG) continued to recommend Carpenter-Coustan or National Diabetes Data Group diagnostic threshold for the 100-g OGTT. Also, the diagnostic criteria for PE were revised in 2013 to encompass other features of end-organ dysfunction. As different criteria will identify different degrees of patients, prevalence of adverse outcomes may differ greatly according to the study period. Therefore, study period and diagnostic criteria may need to be considered in the risk adjustment.

Patients with conditions that predispose to insulin resistance (e.g., polycystic ovarian syndrome (PCOS)) are considered at high risk for GDM and subjected to earlier GDM screening at initial prenatal visit. We cannot argue with the fact that NAFLD is a manifestation of metabolic syndrome and presence of insulin resistance. Thus, as with PCOS, patients with NAFLD also may be a potential candidate for stringent GDM screening with the intent of optimizing gestational outcome. However, it is problematic that there lacks consistency with regard to the diagnosis of NAFLD in pregnancy at present. While ultrasound is commonly employed, due to its low sensitivity and operator-dependency there is no consensus on ultrasound criteria to diagnose fatty liver. Therefore, building a consensus on diagnostic criteria or possibly developing a new ultrasonographic grading that are based on the specific relationships to risk of adverse pregnancy outcome is warranted.


