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Clinical Decision Support for early Gestational Diabetes Screening in the general population.

Gestational diabetes mellitus (GDM) is the development of diabetes in pregnancy without preexisting type 1 or type 2 diabetes.[1] GDM increases the risk of morbidity and mortality for both parent and fetus and has the potential to increase the offspring's risk for other chronic diseases later in life.[1,2] Prevalence in the United States increased from 6.0% in 2016 to 7.8% in 2020, but for some racial groups, GDM can occur in as many as 16.7% of pregnancies.[1] Risk factors for GDM are variable; they include maternal age, weight or body composition, ethnicity or race, family history of diabetes or GDM in a previous pregnancy, plurality, and endocrine conditions like polycystic ovarian syndrome.[1,3,4]

A 2-step verification process successfully attains diagnosis of GDM.[4] After reaching 24 weeks gestation, pregnant individuals consume a glucose load between 75-100g and are observed for blood glucose levels over one hour.[4] While this standard is held by 90% of the country's obstetricians, those with high risk for GDM do not have a standard of practice for prevention.[4] There is little evidence to determine the risks or benefits of screening for GDM at earlier gestational ages.[4]

Medical nutrition therapy for GDM is introduced once a patient has been diagnosed.[2] According to the diabetes standards of care from the American Diabetes Association, it is recommended that patients with GDM work with an interdisciplinary care team, including a registered dietitian nutritionist (RDN), if the resources are available.[2] While this step is essential

for care, some research argues that early detection and prevention should be the first steps of GDM treatment.[5,6] General guidelines for GDM prevention in non-diabetic populations involve losing excess weight and exercising before becoming pregnant.[3] This prevention strategy may be inadequate with the increasing prevalence of GDM.

In comparison, guidelines for care of individuals with diabetes prior to pregnancy encourage maintenance of A1C below 6.8%, steady blood sugar, nutrition counseling, and other preventive care options like lifestyle changes.[2] These guidelines also recommend working with an RDN starting in the preconception stage to improve pregnancy outcomes.[2] Some research also suggests that similar treatment for individuals at high risk for GDM in early pregnancy may significantly reduce the incidence of GDM altogether.[7] Nutrition care, in general, is beneficial for healthy pregnancy outcomes.[8] Given this information, there may be potential benefits of early medical nutrition therapy intervention for individuals at high risk for GDM.

A study examined the precision and accuracy of several clinical decision support tools (CDS) to predict GDM in patients.[9] One of the tools accurately predicted GDM in ~75% of total diagnosed cases based on the independent factor of fasting blood glucose and insulin levels before 24 weeks gestation.[9] Though this tool has potential, it is limited by the sample population and cannot be accurately transposed to the general population.[9] As of 2019, other CDS tools and guidelines for GDM support remain inconsistent.[10]

The inclusion of an RDN in the routine care of pregnant individuals may improve pregnancy outcomes in the general population and reduce the incidence of GDM. Providing

nutrition and pregnancy education, motivational interviewing, and meal plans to patients with multiple risk factors may be the next step for diabetes prevention and care.

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