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Review of Non-Invasive and Non-Pharmacological Interventions for the Prevention of Gestational Diabetes Mellitus

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Review of Non-Invasive and Non-Pharmacological Interventions for the Prevention of Gestational Diabetes Mellitus

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PATIENT CARE ISSUE

- Gestational Diabetes Mellitus (GDM) affects around 7% of pregnant women in America
- Prevalence is increasing just as obesity is in the general population
- Adverse effects of GDM for both mother and baby:
  - Mother: greater chance of needing C-section, preterm delivery, and hypoglycemia
  - Newborn: Hypoglycemia
  - Both have greater risk of developing Type 2 Diabetes Mellitus

PURPOSE

To review evidence for the most effective non-invasive and non-pharmacological interventions to reduce GDM

EVIDENCE-BASED PRACTICE QUESTION

Question: What non-invasive and non-pharmacological intervention would best prevent GDM?
PICO:
- P: Pregnant women at risk for GDM
- I: Dietary modifications, physical activity level and combination of both
- C: Women who do not make any modifications to their lifestyle during pregnancy
- O: Decreased number of women who are diagnosed with GDM

REGISTERED NURSE INTERVIEW

- Spoke with a maternity RN from Kettering Medical Center
- Stated lack of interventions among population
- There is a need for prenatal education concerning GDM

METHODS

- Searched databases:
  - Medline
  - Pubmed
  - CINAHL (Plus)
  - ProQuest Nursing and Allied Health Source
- Keywords included:
  - Gestational Diabetes
  - Inclusion Criteria
  - Prevention
  - Interventions
- Exclusion Criteria
  - During pregnancy
  - Prevention of GDM or obesity
  - Non-invasive and non-pharmacological interventions
- Exclusion Criteria
  - Pre-pregnancy interventions
  - Gestational Diabetes Mellitus
  - Invasive interventions (glucose testing)
  - Pharmacological interventions (insulin and Vitamin D)

LIMITATIONS

- Self report in lifestyle change interventions
- Low level of evidence reported within articles
- Majority of literature focused on one specific intervention rather than a comparison of all the interventions

RESULTS

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SYNTHESIS OF EVIDENCE

The following interventions have a positive effect on reducing maternal weight gain and the chance of developing GDM with no adverse affects to fetus:

Diet:
- Largest impact on weight loss and favorable pregnancy outcomes
- Diets consisting of low-fat and low-carbohydrate intake

Physical Activity:
- Pregnant women should get at least 150 minutes/week of moderate intensity aerobic exercise
- Prior to third trimester is the optimal time window for effective weight loss

Combination of Both:
- Should have stronger impact on prevention of GDM than increased physical activity alone

Prenatal interventions are proven to be the best for prevention of excessive maternal weight gain during pregnancy and reducing the risk of developing GDM

EVIDENCE-BASED PRACTICE RECOMMENDATIONS

- Teach importance of prenatal healthy lifestyle
- Primary emphasis of a low-carbohydrate and low-fat diet
- At least 30 minutes moderate intensity physical activity per day
- Encourage research for more specific non-pharmacologic and non-invasive interventions for GDM prevention

REFERENCES