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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 ⁸
- Prevalence is increasing just as obesity is in the general population ⁵
- Adverse effects of GDM for both mother and baby ¹
 - 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?

PICO₃

- 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
 - Diet
 - Prevention
 - Interventions
 - Gestational Diabetes
- Inclusion Criteria
 - During pregnancy
 - Prevention of GDM or obesity
 - Non-invasive and non-pharmacological interventions
- Exclusion Criteria
 - Pre-pregnancy interventions
 - Emphasis on Type 2 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

Database	Keywords	Number of Articles	Articles Included in Review
PubMed	Gestational diabetes, intervention	296	3
CINAHL (Plus)	Gestational diabetes, interventions	6	2
MEDLINE	Gestational diabetes, interventions	4	(the same 2 found in CINAHL)
MEDLINE	Gestational diabetes, prevention	18	1
MEDLINE	Gestational diabetes, diet, intervention	2	0
ProQuest Nursing and Allied Health Source	gestational diabetes, intervention/interventions, prevention	61	2
Total Number of Articles		387	8

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. ⁷

Diet:

- Largest impact on weight loss and favorable pregnancy outcomes ⁷
- Diets consisting of low-fat and low-carbohydrate intake ^{6, 7}

Physical Activity:

- Pregnant women should get at least 150 minutes/week of moderate intensity aerobic exercise ⁴
- Prior to third trimester is the optimal time window for effective weight loss ⁴

Combination of Both:

- Should have stronger impact on prevention of GDM than increased physical activity alone ²

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 ⁵
- Primary emphasis of a low-carbohydrate and low-fat diet ^{5, 6, 7}
- At least 30 minutes moderate intensity physical activity per day ^{4, 7, 8}
- Encourage research for more specific non-pharmacologic and non-invasive interventions for GDM prevention ^{5, 7, 8}

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