Interventions to Mitigate Cardiovascular Disease Risk after Adverse Pregnancy Outcomes

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BACKGROUND

- Adverse pregnancy outcomes (APOs), including the hypertensive disorders of pregnancy, gestational diabetes (GDM), preterm birth, and intra-uterine growth restriction (IUGR) are associated with increased risk of cardiometabolic and cardiovascular disease (CVD) later in life
- APOs may present an opportunity to intervene to prevent or delay onset of later-life CVD
- No review to date summarizes evidence for targeted postpartum interventions and strategies to reduce CVD risk in women with a history of APO

METHODS

- Searched PubMed and Ovid for English-language randomized trials, cohort studies, descriptive studies, guideline documents, and scientific statements
- Chain-referral sampling to identify additional relevant literature
- Exposure terms: variations of hypertensive disorders of pregnancy, gestational diabetes mellitus, preterm birth, intra-uterine growth restriction
- Search terms: variations of postpartum lifestyle interventions, transitional clinics, pharmacotherapy, education
- Literature search conducted June 2020–April 2021

RESULTS

- Four categories of interventions were identified: transitional clinics, lifestyle interventions, pharmacotherapy, and patient/clinician education:
- Lifestyle interventions may reduce type 2 diabetes incidence in women with prior GDM; less is known about lifestyle following other APOs
- Metformin may prevent type 2 diabetes in women with remote prior GDM
- Low awareness of link between APOs & CVD among patients and clinicians
- Ongoing RCTs poised to further inform care of affected women:

<table>
<thead>
<tr>
<th>Clinical Trial</th>
<th>APO(s)</th>
<th>Intervention</th>
<th>Description</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Heart Health 4 New Moms: A Randomized Trial in the First Year After Preecclampsia (NCT03749746)</td>
<td>Preecclampsia</td>
<td>Lifestyle</td>
<td>Web-based lifestyle intervention and home blood pressure monitoring over year postpartum</td>
<td>Weight loss</td>
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<tr>
<td>Virtual cardiac wellness program following hypertensive disorders of pregnancy (NCT number pending)</td>
<td>Hypertension</td>
<td>Lifestyle</td>
<td>Virtual cardiac wellness program beginning 6-8 weeks postpartum for 6 months</td>
<td>Weight loss</td>
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<tr>
<td>Mom's Healthy Heart: A Lifestyle Intervention for Women With Recent Preecclampsia or GDM (NCT03993145)</td>
<td>Preecclampsia</td>
<td>Lifestyle</td>
<td>Web-based lifestyle intervention and personalized dietitian coaching 3-15 months postpartum</td>
<td>Retention and program adherence</td>
</tr>
<tr>
<td>FitAfter Baby: A Health Intervention to Increase Postpartum Weight Loss in Women at Increased Risk for Cardiometabolic Disease (NCT02151734)</td>
<td>GDM</td>
<td>Lifestyle</td>
<td>Mobile application and communications with a lifestyle coach to increase exercise and weight loss over first year postpartum</td>
<td>Weight loss and postpartum weight retention</td>
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<tr>
<td>Alternative Lifestyle Interventions in Vulnerable Ethnic Groups program (ALIVE; NCT04406792)</td>
<td>GDM</td>
<td>Lifestyle</td>
<td>Address elevated risk in Black women with prior GDM (4-6 weeks postpartum) using virtual health intervention with doula</td>
<td>HbA1c screening 6-12 weeks postpartum</td>
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<td>Pragmatic Approach to Lowering the Risk of Diabetes Mellitus After GDM (NCT04166591)</td>
<td>GDM</td>
<td>Pharmacotherapy</td>
<td>Metformin given 0-12 months postpartum</td>
<td>HbA1c</td>
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<td>Empagliflozin and the Preservation of Beta-cell Function in Women With Recent Gestational Diabetes (EMPA post-GDM; NCT03215069)</td>
<td>GDM</td>
<td>Pharmacotherapy</td>
<td>Empagliflozin given 6-36 months postpartum</td>
<td>Insulin secretion-sensitivity Index-2</td>
</tr>
<tr>
<td>The Impact of Uricosuric on Glucose Tolerance and the Risk of Type 2 Diabetes in Women With Previous Pregnancy-Induced Diabetes (NCT01752448)</td>
<td>GDM</td>
<td>Pharmacotherapy</td>
<td>Subcutaneous fragilglucids daily for 5 years in women within 5 years postpartum</td>
<td>Change in glucose tolerance</td>
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<tr>
<td>Postpartum Low Dose Aspirin After Preecclampsia for Optimization of Cardiovascular Risk Trial (NCT02432781)</td>
<td>Severe preecclampsia</td>
<td>Pharmacotherapy</td>
<td>Aspirin given 0-6 months postpartum</td>
<td>Endothelium-dependent dilation</td>
</tr>
</tbody>
</table>

DISCUSSION

- Transitional clinics identify women at elevated CVD risk, may help transition to primary care:
- Transitional clinics, lifestyle intervention, targeted pharmacotherapy, and clinician/patient education are promising strategies for improving postpartum cardiometabolic health in women with APOs
- Further research needed to develop and rigorously evaluate interventions
- Future efforts should focus on strategies to increase maternal postpartum follow-up, improve accessibility to interventions across diverse racial/cultural groups, and define evidence-based precision prevention strategies

DISCLOSURES

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