Pre-conception management of diabetes

Bharti Kalra, Yashdeep Gupta, Sanjay Kalra

Abstract
Pre-conception management of diabetes implies the optimization of all biological, social, and psychological factors, prior to conception, in a woman with preexisting type 1 or type 2 diabetes. Pre-conception management includes appropriate counseling, investigations, glycaemic and supportive management. This brief communication encapsulates the essential features of pre-conception management.

Keywords: Pre-conception management, Diabetes, woman.

Introduction
As diabetes becomes more and common in younger adults, primary care physicians increasingly encounter women of childbearing age, living with diabetes. As the average age of marriage and child bearing has also increased, these women often request help in planning pregnancy. This aspect of diabetes care, known as pre-conception management, is more important than routine diabetes practice. Not only does it help ensure well being and avoidance of complications, for the woman with diabetes, it also helps plan a healthy pregnancy, in which foetal outcomes are optimized. Lack of glucose control in the preconception period is associated with a higher risk of adverse maternal and foetal events, which can be avoided by appropriate planning and conception.

Definition
Pre-conception management of diabetes implies the optimization of all biological, social, and psychological factors, prior to conception, in a woman with preexisting type 1 or type 2 diabetes. Pre conception management includes appropriate counseling, investigations, glycaemic and supportive management. This brief communication encapsulates the essential features of pre conception management (Table-1).

Counselling
- Risk of unplanned pregnancy
- Need for contraception
- Importance of strict glycaemic control
- Need for insulin
- Financial planning

Review of Medication
- For potential teratogenic drugs

Immunization
- Rubella
- HBV

Investigations
- Obstetric-related: ABO Rh; Pap smear; TORCH; HIV/HBsAg/HCV/VDRL
- HbA1c
- Creatinine; urine albumin to creatinine ratio
- Fundus, TSH

financial planning is also an essential part of pre conception care, especially in pay from pocket markets.

Table-1: Components of preconception management.

<table>
<thead>
<tr>
<th>Counselling</th>
<th>Risk of unplanned pregnancy</th>
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</thead>
<tbody>
<tr>
<td>Need for contraception</td>
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<td>Importance of strict glycaemic control</td>
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<td>Need for insulin</td>
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<tr>
<td>Financial planning</td>
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</tbody>
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Correspondence: Sanjay Kalra. Email: brideknl@gmail.com

1Department of Obstetrics, 2Departments of Endocrinology, Bharti Hospital, Karnal, 3Department of Medicine, All India Institute of Medical Sciences, New Delhi, India

1Financial planning is also an essential part of pre conception care, especially in pay from pocket markets.
substituted with safer alternatives. Chronic diuretic use leads to restriction of maternal plasma volume and reduction in utero-placental perfusion.\(^1\)

Metformin is classified as a category B drug in pregnancy. Both metformin and glyburide may be used in pregnancy, but insulin is the preferred drug for management during this period. While planning pregnancy, every effort should be made to achieve control with insulin monotherapy during the pre-conception period.

**Investigations**
Basic obstetric investigations including blood group, Pap smear and cervical culture should be carried out as indicated. Testing for titres against TORCH, HIV, HBV and HCV should be done as per local obstetric practice. Diabetes-related investigations such as HbA1c, creatinine, and urine albumin-to-creatinine ratio must be performed, and optimized during pre-conception period. A fundus examination and thyroid stimulating hormone (TSH) test are essential.\(^1\)

**Glycaemic Control**
The need for strict glycaemic control and stringent pregnancy-specific targets must be shared (Table-2). Every effort should be made to achieve these targets, without causing hypoglycaemia.\(^2,3\) A monthly HbA1c estimation help in planning therapy. Insulin is the drug of choice in pre-conception and during pregnancy.

Blood pressure should be controlled, if necessary, using safe drugs such as methyldopa, labetalol, diltiazem, clonidine and prazosin. A target of 110-129/ 65-79 mmHg should be aimed for.\(^4\)

**Supportive Management**
Immunization recommendations for women of childbearing age vary from country to country. Local practices should be informed and followed. These may include rubella and hepatitis B vaccination. Folic acid should be supplemented in a dose of 4 mg/day, to prevent neural tube defects. Contraception is required for at least 6 weeks after any vaccine is administered.

Psychosocial counseling and support must be provided as needed.

**References**

<table>
<thead>
<tr>
<th>Target</th>
<th>GDM</th>
<th>T1DM/T2DM</th>
<th>ADA</th>
<th>ACOG</th>
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</thead>
<tbody>
<tr>
<td>Pre-meal glucose</td>
<td>&lt;95 mg%</td>
<td>60-99 mg%</td>
<td>&lt;105 mg%</td>
<td>&lt;105 mg%</td>
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<tr>
<td>1hPP glucose</td>
<td>&lt;140 mg%</td>
<td>–</td>
<td>&lt;155 mg%</td>
<td>&lt;130-140 mg%</td>
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<tr>
<td>2hPP glucose</td>
<td>&lt;120 mg%</td>
<td>–</td>
<td>&lt;130 mg%</td>
<td>&lt;120 mg%</td>
</tr>
<tr>
<td>Peak PP</td>
<td>–</td>
<td>100-129 mg%</td>
<td>–</td>
<td>&lt;6.0%</td>
</tr>
<tr>
<td>HbA1c</td>
<td>–</td>
<td>–</td>
<td>&lt;6.0%</td>
<td>–</td>
</tr>
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