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REVIEW ARTICLE

# Lessons Learned from Nirogi Maatha – Sri Lanka

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The National Initiative to Re-organize General diabetes care In Sri Lanka (NIROGI Lanka), which is a project of the Diabetes Prevention Task Force Sri Lanka Medical Association is funded by the World Diabetes Foundation, and Nirogi Maatha (Healthy Mother) is one of its three components that commenced in 2012 as a part of the Phase II implementation of the initiative.

NIROGI Maatha is committed to improving the quality of maternal diabetes care and in empowering communities to be responsible for the prevention of diabetes through the lifecycle and ensure optimal protection of the next generation. Multidisciplinary care and building tertiary and primary health care partnership is our priority with self-management of diabetes the focus. The focal point for maternal and child health (MCH) is the Family Health Bureau, Ministry of Health Sri Lanka, who is our main partner.

## Objectives and outputs of NIROGI Maatha

- Develop national guidelines with universal screening by DIPSI method
- Capacity building of the field staff
- Quality management of pregnant women with diabetes
- Develop a national centre of excellence that addresses long-term follow up ofmother-baby pairs
- Develop a database of GDM prevalence throughout the country

## Results

### 1) Universal screening for gestational diabetes (Nirogi Maatha Project – Sri Lanka) – preliminary data of community based early pregnancy screening

Background: The quantum of glucose intolerance in early pregnancy among Sri Lankans is unknown. Nearly 95% of women in Sri Lanka have formal antenatal booking before 8 weeks of gestation. Nirogi Lanka project aims for universal screening of pregnant women.

**Objective:** To determine the prevalence of previously undetected diabetes/ pre-diabetes among South Asian women in the first trimester and compare with gestational diabetes detected in later pregnancy.

**Methodology:** Nirogi Maatha with Family Health Bureau and other stakeholders developed practice guidelines, provided skills training and equipment for applying universal screening by 75g Glucose Challenge Test of pregnant mothers (DIPSI) in field based maternity clinics in first trimester and thereafter. Data was collected from five selected semi-urban centres in Colombo district. Glucometers were validated by Medical Research Institute, Colombo and staff training provided under expert supervision.

**Results:** Between 07.02.2014 to 02.02.2015, a total of 3109 consecutive pregnant women were screened. Those with known diabetes at booking were excluded. Numbers

screened were: 1998 in 1st, 877 in 2nd and 234 in 3rd trimesters. Two hour BG>140mg/dl - 475 (24%) in 1st, 234 (26%) in 2nd and 67 (28%) in 3rd trimesters. 2hBG ≥153 mg/dl - 235 (11%) in 1st, 136 (15%) in 2nd and 31 (13%) in 3rd trimesters.

**Conclusion:** Prevalence of glucose intolerance in pregnancy is high among semi-urban Sri Lankan women in all three trimesters, while DIPSI method nearly doubled the detection rate. Specificity of the test cut offs requires further study with pregnancy outcomes.

The 2h BG cut off >140 mg/dl being unequivocal in detecting impaired glucose tolerance (IGT) in first trimester, this data calls for urgent action to detect early pregnancy or pre-pregnancy IGT in the South Asians.

## 2) Long term outcomes of diabetic mothers and their infants – South Asian experience (NIROGI Maatha -Sri Lanka)

### Introduction

We pioneered long term follow up of mother-baby pairs managed for maternal diabetes and delivered in a single unit in Colombo, Sri Lanka.

### Method

Sample - Prospective cohort of consecutive diabetic and non-diabetic mothers. All diabetics received specialist multidisciplinary antenatal care. Controls were medically and obstetrically uncomplicated.

Outcome measures - Maternal and neonatal outcomes and infant development at 9 months in both groups.

### Results

Total 312 pregnancies- pre-pregnant diabetes (PGDM) 68, gestational diabetes (GDM) 143 and controls 101 were recruited.

Diabetics versus Controls:

Median age- 33 versus. 29 years, p<0.001.

Median POA at delivery - 38 vs. 39 weeks (p<0.001).

Mode of delivery LSCS - 51% vs.24% ,RR 2.1 CI 1.4-3, p.

There was no difference in other obstetric complications.

Preterm delivery rate is 15.2% in both GDM/PGDM combined whereas it's 10% in the control group.

Mean (SD) birth weight (kg) - PGDM 3.1(0.6), GDM 3.0(0.6) and controls 2.8(0.6), p <0.001

Neonatal hypoglycaemia - PGDM (18%), GDM (5%), controls (2%), p<0.001. Hypocalcaemia - 2 (PGDM) neonates.

Neonatal jaundice - PGDM (22%), GDM (18%), and controls (13%), p=0.29.

At 6 months follow up –

Maternal Diastolic BP >90 mm/Hg - PGDM (19%), GDM (17%), Controls (2%) p <0.001.

Pharmacological interventions required for hyperglycaemia - 53% PGDM and 17% GDM

Three infants had developmental delay at 9 months (all in diabetic group).

### Conclusions

Dedicated management of maternal metabolic control is feasible in the state sector of Sri Lanka. Nevertheless, diabetic pregnancies are associated with greater complications for mothers and offspring. Substantial proportion with GDM has postpartum glucose intolerance and hypertension at 9 months postpartum.

**Recommendation** – Comprehensive protocol for long term follow up of mothers with GDM

*This data is also presented at Diabetes in Pregnancy meeting, Berlin.

***It is the mark of an educated mind to be able to entertain a thought without accepting it.***

— ARISTOTLE