

**Session title:** Nutrition and diet

**Session type:** Poster - Diabetes in Women and Children

**Track:** Diabetes in Women and Children

**Presentation number:** P-1007

## ★ Abstract title:

Energy and nutrient intake of Sri Lankan mothers with a history of gestational diabetes mellitus at six weeks postpartum

T. Sundarapperuma<sup>1</sup>, S. Wasalathanthri<sup>2</sup>, C. Wijesinghe<sup>3</sup>, P. Hettiarachchi<sup>4</sup>.

<sup>1</sup>University of Ruhuna, Allied Health Sciences, Galle, Sri Lanka.

<sup>2</sup>University of Colombo, Physiology, Colombo, Sri Lanka.

<sup>3</sup>University of Ruhuna, Community Medicine, Galle, Sri Lanka.

<sup>4</sup>University of Sri Jayawardenepura, Physiology, Nugegoda, Sri Lanka.

## Background

Prevalence of Gestational diabetes mellitus (GDM) is rapidly rising over the past two decades owing partly to inappropriate diet. Women with GDM are at increased risk for future GDM, pre-diabetes, and type 2 diabetes. Hence it is a global health challenge to overcome GDM. Adopting a healthy lifestyle with dietary modifications is a key priority in the management of GDM. As suggested by recent studies, post-partum period is the ideal time for intervention. A feasible, culturally acceptable dietary intervention to achieve a healthy body weight has potential for improving the health of women. Planning a dietary intervention program requires understanding of the current dietary intake and nutritional status.

## Aim

To determine energy, macronutrient and selected micronutrient intakes of Sri Lankan mothers with a history of GDM at 6 weeks postpartum.

## Method

A community based, cross sectional study was conducted in three selected districts of Sri Lanka. Hundred postpartum mothers with a history of GDM first recognized during current pregnancy who delivered a singleton healthy infant were recruited six weeks after delivery. A pre-tested, self-administered questionnaire was used to collect socio-demographic data. Anthropometric measurements were taken and Body Mass Index (BMI), waist:height ratio and waist:hip ratio were calculated. A standard food frequency chart and 24-hour dietary record (24 HDR) were used to assess daily food intake. All foods recorded in 24 HDR were converted into grams and the intake of total energy, macronutrients and selected micronutrients (calcium, iron and folate) were analyzed using NutriSurvey 2007 (EBISpro, Germany) which was modified for native food recipes and food composition tables for Sri Lanka. Relevant descriptive statistics were used to discuss the data. One sample and independent sample t tests were used to compare the mean total calorie, macronutrient and micronutrient intakes with recommended values for healthy Sri Lankan nursing mothers. Ethical clearance was obtained from Ethical Review Committee, University of Sri Jayawardenepura, Sri Lanka.

## Results

Mean age $\pm$ SD was 33.6 $\pm$ 5.8 years and 52% of mothers were para 2. The mean $\pm$ SD BMI, waist:hip and waist:height were 25.99 $\pm$ 4.67 kg/m<sup>2</sup>, 0.94( $\pm$ 0.12) and 0.59 $\pm$ 0.11 respectively. In the cohort of mothers studied, 21% were of normal weight while 16% and 63% were overweight and obese respectively.

The mean $\pm$ SD intakes of total calorie, carbohydrate, protein and fat were 2817 $\pm$ 984 kcal, 445 $\pm$ 186g, 95 $\pm$ 39g and 87 $\pm$ 58g respectively. Total calorie intake was significantly higher when compared to recommended levels based on their BMIs in both normal (3033 $\pm$ 1122 vs 2300Kcal/d; p<0.00) and overweight and obese (2759 $\pm$ 944 vs 1800Kcal/d p<0.00) postpartum women. In obese group, daily carbohydrate (467 vs 225g), fat (87 vs 70g) and protein intakes (92 vs 67.5g) were significantly higher than the recommended intake (p>0.00)

whereas in the normal BMI group, only daily carbohydrate was higher than the recommended level. Mean±SD daily intake of calcium ( $1026\pm737$  mg) and iron ( $35\pm30$  mg) were in par with the recommendation and whereas folic acid was significantly lower than the recommended value ( $42\pm99$  vs  $500$  µg;  $p < 0.00$ ). Analysis of macronutrient intake shows that mothers have obtained 68% of calories by carbohydrates, 14% by proteins and 28% by lipids.

### **Discussion**

In this cohort, 79% were above acceptable BMI range which directs towards the future diabetes and metabolic risk in the sample. Intake of calories, carbohydrates, proteins and fats are high among the study population but they consume less fiber and folic acid in their diets. Although it is recommended that 50% of the calories is allowed to be obtained by carbohydrates, significantly higher intake in these women may contribute to increased metabolic risk. This finding may be attributable to Sri Lankan traditional food habits. Sri Lankans' staple food is rice and all mothers had eaten rice more than once per day in addition to majority adding large portions of mature *Artocarpus heterophyllus* (jack fruit) to their meals, which is traditionally believed to promote lactation. Folic acid has a direct relationship with GDM and DM and poor folic acid intake may be the reason for GDM among our study population. The findings suggest the need for methodical, feasible and culturally acceptable nutrient interventions to enhance the health and wellbeing of post-partum mothers.