

Negative Impact of Covid-19 Pandemic on GDM Diagnosis and Management

Shereen Ibrahim^{1*}, Gehan El-Sharamalsy², Ghadeer Khaled³, Hani Mohammed⁴, OPARA Elexie⁵

¹MBBCH, MSC, MRCOG, North Middlesex University Hospital

²MBBCH, MSC, MRCOG, St. Mary hospital, Isle of Wight NHS trust

³MBBCH, MSC, North Middlesex University Hospital

⁴Diabetic Specialist Midwife

⁵FRCOG; Consultant Obstetrician and Gynaecologist, North Middlesex University Hospital

*Corresponding author: Shereen Ibrahim, MBBCH, MSC, MRCOG, North Middlesex University Hospital, UK.

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Introduction

Gestational diabetes mellitus (GDM) is a condition of glucose intolerance that begins or is first recognised during pregnancy [1,2]. Currently, most guidelines recommend an oral glucose tolerance test (OGTT) between 24 and 28 gestational weeks as the method of diagnosis for GDM [1,3-7]. According to the definition, GDM can develop at any time during pregnancy; however, most GDM cases are diagnosed after 24 weeks.

Following diagnosis, proper management (glycaemic monitoring, lifestyle changes, nutritional counselling, exercise and insulin use if appropriate, etc) of GDM in pregnant women is beneficial in controlling maternal and neonatal short-term complications [2]. However, offspring of mothers with GDM are still at a higher risk for developing diabetes [8], obesity [8-10] and metabolic disorders [11] in the long term. One potential reason is that these offspring were exposed to maternal hyperglycaemia prior to diagnosis.

During Covid-19 pandemic, more women currently classified as GDM but who would not be detected ("missed") under the post COVID-19 guidelines demonstrate statistically significantly higher rates of preterm birth, LGA, primary CS, neonatal hyperinsulinemia and neonatal adiposity than non GDM women. Those still classified as GDM using the revised guidelines demonstrate, in addition, an elevated risk of pregnancy related hypertension and numerically higher risks for other outcomes [12].

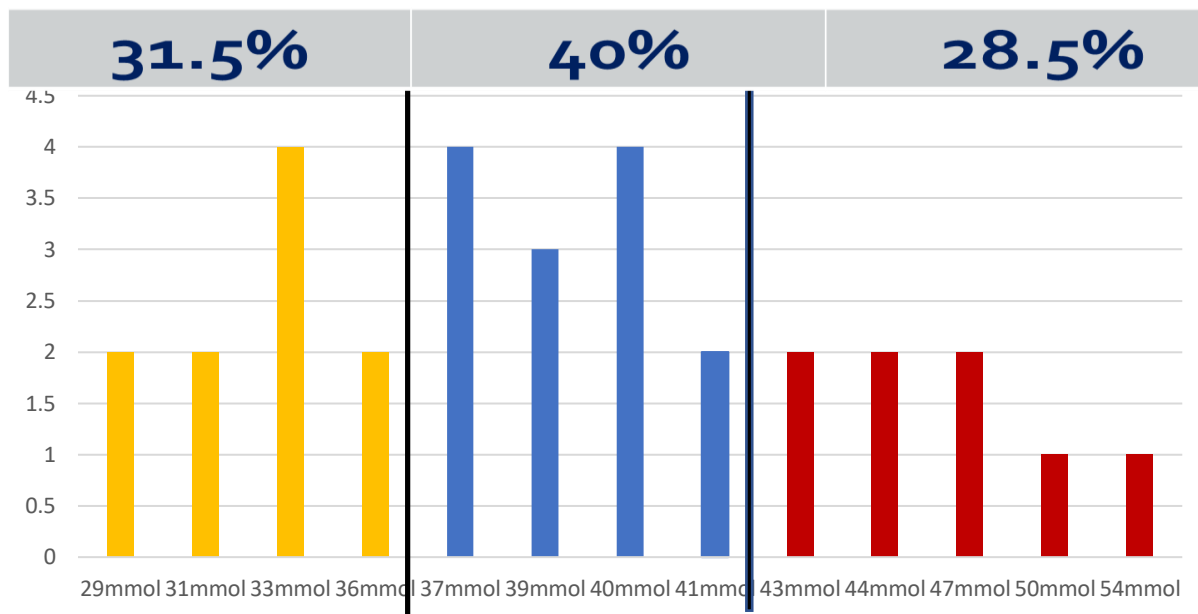
In our hospital we compared the outcomes of our criteria of diagnosing GDM before Covid-19 with the new criteria advised by the Royal College of obstetricians and gynaecologists during the pandemic. We collected the data in 2019 and compared to 2020 within the same time interval.

Pre-Pandemic diagnosis of gestational diabetes was by OGTT; if the woman has either fasting plasma glucose level of ≥ 5.6 mmol/litre or above or 2-hour plasma glucose level of ≥ 7.8 mmol/litre.

During Covid-19 pandemic, the RCOG recommended the use of HbA1c and fasting/random glucose to screen for diabetes in pregnancy. Women at high risk of GDM (previous GDM, high BMI) would be screened at booking with random blood glucose level and HbA1c.

If HbA1c ≥ 48 mmol/mol pregnant we treat them as Type-2 DM. If HbA1c is between 41-47mmol/mol and previous GDM, treat as GDM. Women who are high risk for GDM tested at 28 weeks by HbA1c and fasting blood glucose instead of OGTT, a level of ≥ 39 mmol/mol and fasting blood glucose levels ≥ 5.3 mmol/L would diagnose GDM in pregnancy.

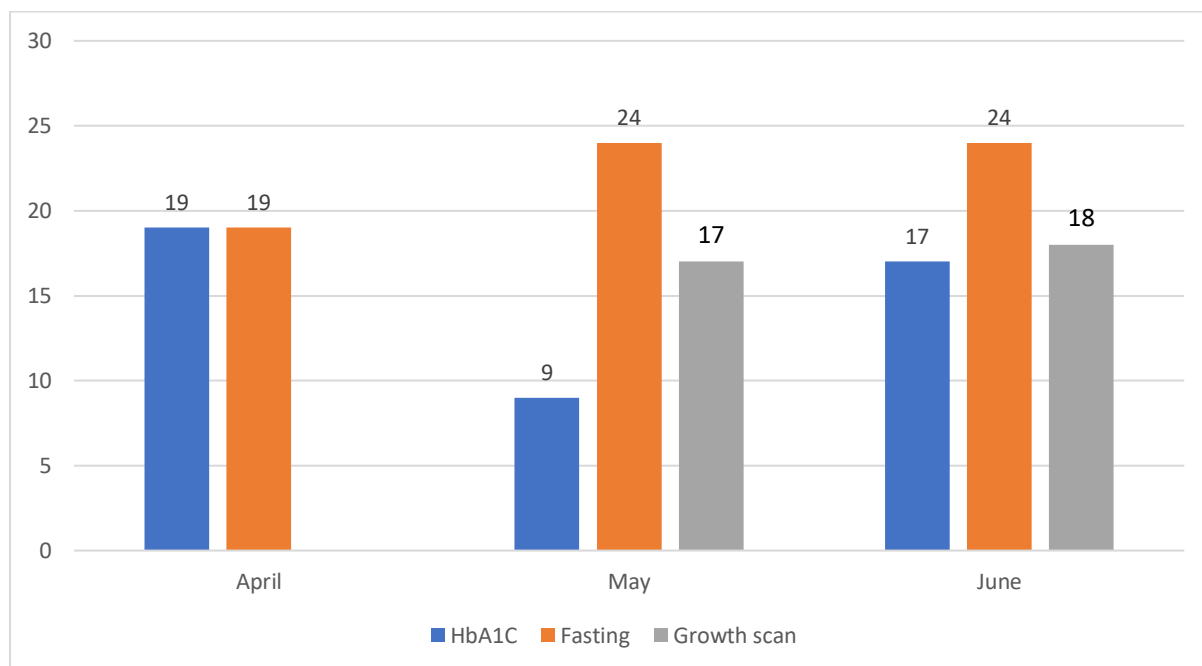
Our GDM audit before Covid-19 pandemic showed that for patients who had HbA1c done as a part of their follow up after been diagnosed by OGTT, 31.5% had HbA1C level of less than 37mmol/mol. This means from our audit, 31.5% of women diagnosed as GDM with OGTT showed normal HbA1C values. The implication is that using the RCOG pandemic advised diagnostic criteria, this cohort of women will be missed.



The result of HBA1C taken to patients diagnosed as GDM by OGTT before Covid-19 pandemic.

A review of our diagnosis of GDM during the pandemic using HbA1C revealed that 34% of patients in May and 30% of patients in June were missed and diagnosed late after their growth scan showed large for gestational age baby on GAP-grow chart. They were advised to monitor their blood

sugar like GDM patients for 1-2 weeks and the values showed they were gestational diabetics. Hence, on the advice of our endocrinology colleagues, we lowered our advised-monitoring threshold to hbA1C value of 39 to avoid delayed diagnosis and management of these patients.



The number of patient diagnosed as GDM by HBA1c, FBS and retrospectively after a scan showing LGA.

Conclusion

The data presented demonstrates the negative impact covid-19 pandemic has had on our GDM services and subsequently the care of this cohort of pregnant patients.

The use of HBA1c delayed the diagnosis and management of GDM in $\geq 30\%$ of our at-risk pregnancy population. The babies as a consequence, were exposed to the effect of hyperglycaemia much longer until late diagnosis based on blood sugar monitoring following growth scan and Gap-Grow plotting results that showed large for gestational age.

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