

An audit of non-obstetric and obstetric requests for Oral Glucose Tolerance Test (OGTT) in Colchester Hospital – pre-pandemic.

Miss Sukhjinder Moore, Dr Catherine Street
Department of Blood Sciences, Colchester Hospital,
East Suffolk and North Essex NHS Foundation Trust

Introduction

The 75g 2-hour oral glucose tolerance test (OGTT) is one of the recommended diagnostic tests for diabetes (Classification of diabetes mellitus, WHO 2019). However, based on the WHO 2006 recommendations the OGTT should not be used as a first line test and the patient should have either a random or fasting glucose, or HbA1c measured before being referred for an OGTT.

Furthermore, Diabetes in pregnancy: management from preconception to the postnatal period, NICE guideline [NG3] from 2015 recommends the 75-g 2-hour oral glucose tolerance test (OGTT) to test for gestational diabetes in women with risk factors and in women who have had gestational diabetes in a previous pregnancy. It also states consider further testing to exclude gestational diabetes in women who have glycosuria detected by routine antenatal testing.

Aims of audit

A retrospective horizontal audit of OGTT requests received from 2018 – 2019 at Colchester Hospital, part of East Suffolk and North Essex NHS Foundation Trust (ESNEFT) since 1st July 2018, was carried out to identify: 1) if the OGTT requests were made as recommended by WHO 2006 guidelines in non-obstetric patients, 2) as recommended by NICE guideline [NG3] in obstetric patients and 3) identify areas for improvement.

Methodology

Data on all the OGTT performed (test codes GTTC or GDMC) between 1st January 2018 and 11th October 2019 was extracted from Clinisys Winpath Enterprise by Pathology Business Informatics. Test code GTTC is for non-obstetric and GDMC is for obstetric OGTT requests. OGTTs with only 1 sample and any extended OGTT were reviewed but excluded from further analysis.

Additionally, for all patients with GTTC or GDMC requests, a second extract for test codes A1C (HbA1c), GLXF (fasting glucose) and GLX (random glucose) requested on these patients in the same time period was arranged.

The data was then collated, sorted and further analysed using Microsoft Excel®.

Results

2852 OGTT requests were analysed; 1% non-obstetric and 99% obstetric requests found. The main locations carrying out OGTTs and requesting sample analysis (Figure 1) were antenatal care areas, other secondary care areas and Primary Care areas, contributing to 75.3%, 18.5% and 6.1% of the workload, respectively.

In non-obstetric patients 72% were consistent with a normal response, 14% with Diabetes Mellitus, 11% with Impaired glucose tolerance and 3% with Impaired fasting glucose (Figure 2). 77% of the non-obstetric OGTT requests were clinically indicated with other tests done prior to OGTT, and compliant with WHO 2006.

Fourteen percent of the obstetric patients had 2-3 repeat OGTTs. Only 23% of obstetric requests had gestational time recorded, ranging from 11 to 36.6 weeks. Of these, 66% were made at 28 weeks of gestation and compliant with [NG3]. 5% of requests were collected after 28 weeks of gestation, ranging from 28.1 to 36.6 weeks. These were mainly from the Antenatal Clinic, Outpatient department, and other areas within Colchester General Hospital. 32% of requests had one or more risk factors for gestational diabetes (GDM) as listed in [NG3]. Raised BMI was the commonest risk factor found (Figure 3).

The requestors mainly used the test code GTTC instead of the test code GDMC when requesting obstetric OGTT. Only 1% of the obstetric OGTTs were requested using the correct test code GDMC.

Based on the NICE guideline [NG3], 12% of obstetric requests had results consistent with GDM. Furthermore, 54% of these patients had a fasting glucose of ≥ 5.6 mmol/L but still received a 75g glucose load and continued with OGTT. There were seven obstetric requests with only 1 sample received; none had fasting glucose concentrations diagnostic of GDM.

Figure 1: The main locations requesting OGTT

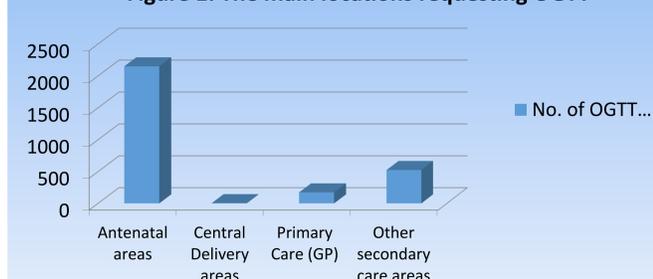


Figure 2: Diagnosis made in non-pregnant patients

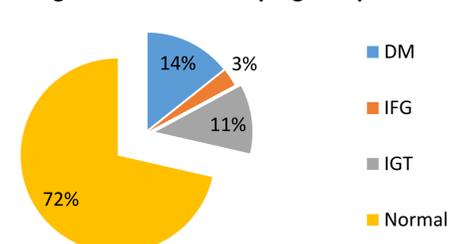
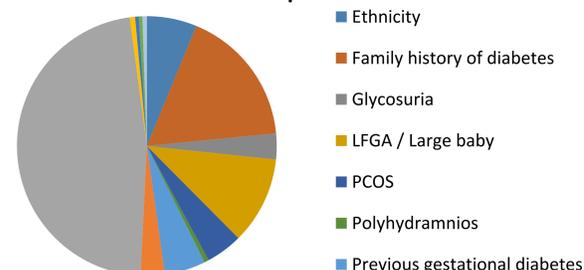


Figure 3: Common clinical indications for obstetric OGTT requests



Conclusions

Based on WHO 2006 criteria, 77% of all non-obstetric OGTT requests were clinically indicated with evidence of appropriate clinical details and previous glucose and/or HbA1c results.

Review of all obstetric OGTT requests showed only 23% had gestational time recorded, and 15% stated a gestational time of 28 weeks in compliance with NICE guideline [NG3]. There were 32% requests with one or more risk factors for GDM as listed in [NG3] which warranted an OGTT. Based on the NICE guideline [NG3], 12% of obstetric OGTT requests had results consistent with GDM. Of these, 54% of requests had a fasting (time 0) glucose of ≥ 5.6 mmol/L and did not need the 75g glucose load. Interestingly, if WHO 2019 and the IADPSG 2010 guidelines were applied to the obstetric OGTT data from this audit, then there would have been 17% of obstetric requests with GDM.

Audit recommendations: Remind users of correct test codes, required clinical details, and clinical indications for OGTTs. Review current practice of post-OGTT sample analysis & clinical need to prevent unnecessary obstetric OGTTs. Consider use of POCT to identify high fasting glucose and prevent administration of glucose load. Review practice at other local hospitals & guidelines in use with our users. Shared learning via audit presentation and then re-audit.

References

1. Definition and diagnosis of diabetes mellitus and intermediate hyperglycemia, World Health Organisation (WHO) 2006.
2. International Association of Diabetes in Pregnancy Study Groups (IADPSG) recommendations for the Diagnosis and Classification of Hyperglycemia in Pregnancy published in 2010
3. Diabetes in pregnancy: management from preconception to the postnatal period, NICE guideline [NG3] 2015.
4. Classification of Diabetes Mellitus 2019, WHO 2019.

Acknowledgements

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