Andrew McGovern, Lucilla Butler, Simon Jones, Jeremy van Vlymen, Khaled Sadek, Neil Munro, Helen Carr and Simon de Lusignan

Diabetes screening after gestational diabetes in England:

a quantitative retrospective cohort study

Short-term and long-term follow-up screening of women with gestational diabetes are poor and important opportunities for intervention are being missed

Address for correspondence

Lucilla Butler
Department of Healthcare Management and Policy, University of Surrey, Guildford, Surrey, GU2 7XH, UK.
E-mail: luci_792002 @ yahoo.co.uk

This is an abridged version of a full-length article published online. Cite this version as:
Br J Gen Pract 2014;
DOI: 10.3399/bjgp14X676410 (abridged text, in print: Br J Gen Pract 2014; 64: 22-23).

BACKGROUND

Approximately 3.5% of pregnancies in England and Wales are affected by gestational diabetes mellitus (GDM). After delivery, females with GDM are at increased risk of developing diabetes, with the highest incidence during the first 5 years. Overt diabetes, impaired fasting plasma glucose (FPG), or impaired oral glucose tolerance are often identified during postpartum screening.

Since 2008, FPG screening at 6 weeks postpartum has been recommended by the National Institute for Health and Care Excellence (NICE). If postpartum screening is normal, NICE recommends annual FPG testing thereafter.

Postpartum follow-up screening rates for females diagnosed with GDM have generally been low in Europe, Canada, and the US, ranging from 23% to 58%. There have been few studies on long-term follow-up; a US study indicated that approximately 40% of females were not tested at all in a 5-year period postpartum. No objective study of GDM follow-up in primary care has been performed in the UK. Here current postpartum and annual screening rates in England are reported, and predictors of concordance with follow-up analysed.

METHOD

Data collected for the Quality Improvement in Chronic Kidney Disease (QICKD) trial from primary care practices across England were used to identify and follow-up females with GDM. The trial data comprise routinely collected primary care records from a nationally representative sample of 127 urban, sub-urban, and rural practices.

Two groups of females were defined: short-term and long-term follow-up groups. All females with GDM identified between January 2006 and December 2009 were used as the short-term follow-up group. This group was followed-up for 6 months postpartum to identify glucose testing in the community. All females diagnosed with GDM between January 1990 and December 2005 were used as the long-term follow-up group. Annual follow-up for this group was analysed over a 5-year period; between January 2006 and December 2010.

Several potential predictors of lack of follow-up were also analysed, based on findings from previous research. A multilevel logistic regression analysis was performed to identify predictors of lack of follow-up.

RESULTS

Short-term follow-up

Of the 788 females in the short-term follow-up group, 146 (18.5%) had glucose testing within the 6-month follow-up period. If the window for follow-up is extended to 1 year, this figure rises to 26.2%. During the follow-up period three females developed diabetes and seven had abnormal blood glucose results. Substantial regional differences were found among screening rates (Figure 1a). No relationship was identified between ethnicity, smoking status, or deprivation status, and lack of short-term follow-up.

Long-term follow-up

One-half (49.1%) of the 718 females in the group had no glucose testing during the 5-year period. The annual screening rates remained consistently around 20% (Table 1). There was no difference in the rates of screening after the introduction of the 2008 NICE guidelines. Only three females were followed-up every year. Seven females were found to have diabetes and 32 had abnormal glucose results. Regional differences were also found among screening rates (Figure 1b). Asian females were more likely to return for long-term follow-up, odds ratio (OR) 1.66 (95% confidence interval [CI] = 1.02 10 2.72) and current smokers less likely to return, OR 0.56 (95% CI = 0.35 to 0.89). No relationship was found with time since diagnosis, or deprivation status.

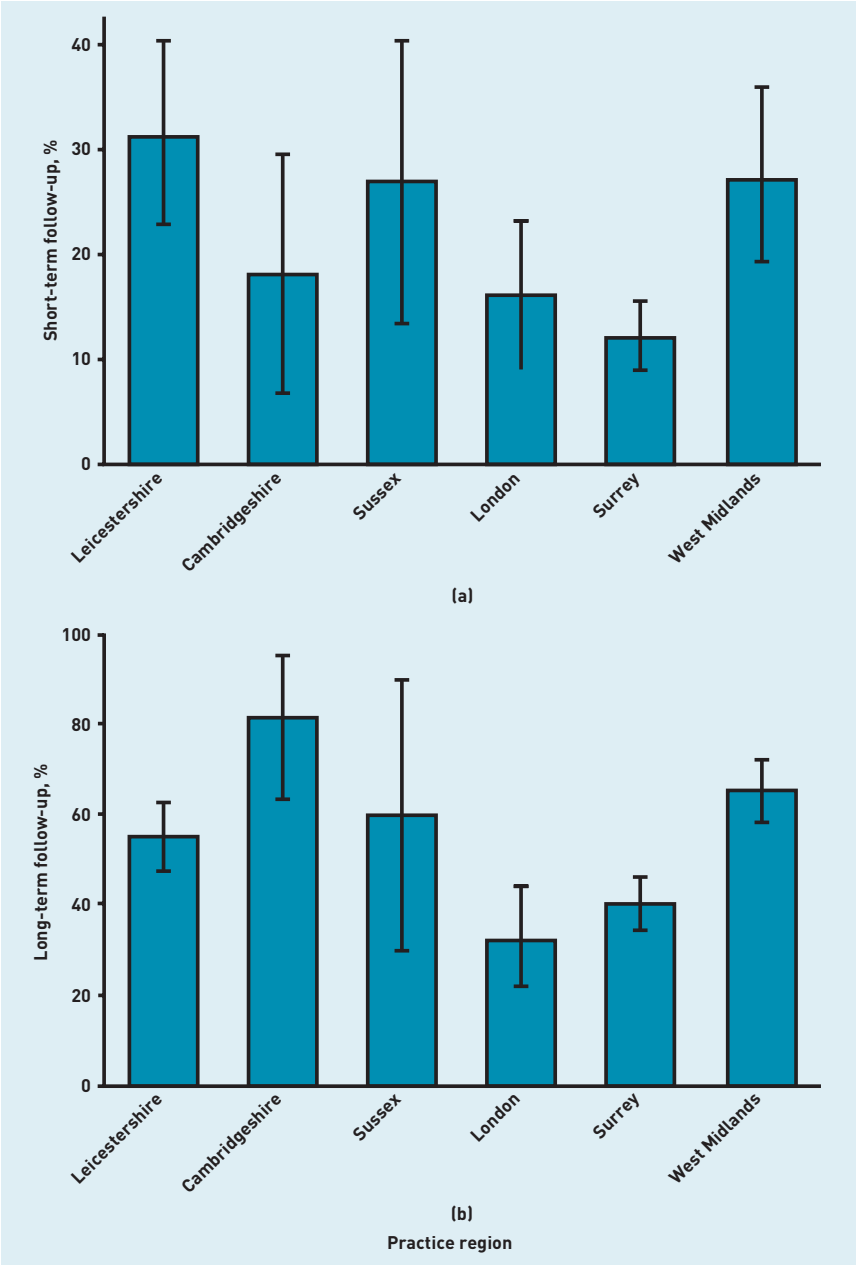

Figure 1. (a) Proportion undergoing short-term follow-up by region. (b) Proportion undergoing one or more long-term follow-up screening tests between January 2006 and December 2010 by region. Error bars represent 95% CIs.

Table 1. Long-term screening rates over 5 years for females with a history of gestational diabetes mellitus

Year	Group, *n*	Followed-up *n* (%)	Abnormal results *n* (%)	New diabetes *n* (%)
2006	718	137 (19.1)	10 (7.3)	5 (3.7)
2007	713	143 (20.1)	4 (2.8)	1 (0.7)
2008	712	153 (21.5)	5 (3.3)	0 (0.0)
2009	712	155 (21.8)	7 (4.5)	1 (0.7)
2010	711	141 (19.8)	6 (4.3)	0 (0.0)

DISCUSSION

For females in England who have been diagnosed with GDM, both long-term and short-term follow-up screening are poor. There are several potential contributing factors. It is known that at present there is ambiguity between primary and secondary care responsibilities for screening. There may also be a perception among doctors that GDM follow-up is not a clinical priority. The failure of NICE guidelines to improve screening rates may be caused by lack of adequate guideline awareness.

The short-term follow-up rate found is comparable with those reported in Canada: 14.3 48%; somewhat worse than the USA: 38 54%; and considerably worse than Australia: 70 73%. The GDM Recall Register in Australia may explain this large discrepancy.

A strength is that data were collected from across England, providing a nationally representative sample. Using routinely collected data provides greater objectivity than that achieved in survey studies. Tests performed in secondary care were not included, and therefore hospital follow-up missed. The present study may have been underpowered to identify minor correlations between potential predictors and lack of follow-up.

Introducing lifestyle changes and pharmacological agents in pre-diabetic states can delay or prevent the onset of diabetes. As suboptimal screening leaves a significant number of females with undiagnosed diabetes and pre-diabetic states, these opportunities for early intervention are missed. Performing all short-term follow-up in the community, perhaps as part of the 6-week postpartum check, could remove current ambiguity. Strategies to improve long-term follow-up could include compiling a recall register, computer alerts to facilitate annual recall, and inclusion of screening in pay-for-performance targets.

Provenance

Freely submitted; externally peer reviewed.

Competing interests

The authors have declared no competing interests.

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