Midwifery 50 (2017) 99–105

Contents lists available at ScienceDirect

Midwifery

journal homepage: www.elsevier.com/locate/midw

Exploring knowledge of pre-eclampsia and views on a potential screening test in women with type 1 diabetes

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ARTICLE INFO

Keywords:
Diabetes
Pre-gestational
Pregnancy
Information
Pre-eclampsia
Screening

ABSTRACT

Objective: to explore knowledge of pre-eclampsia and opinions on potential screening tests for pre-eclampsia in women with type 1 diabetes.
Design: a qualitative study using semi-structured interviews of women planning a pregnancy, currently pregnant or post-partum with experience of pre-eclampsia.
Setting, Participants and Methods: eleven women with type 1 diabetes were recruited from a pre-pregnancy planning clinic or antenatal clinic. Semi-structured interviews were conducted with the women, asking a series of open-ended questions about their current knowledge of pre-eclampsia and their views on screening for pre-eclampsia. Data analysis was conducted using inductive thematic analysis.
Findings: four main themes were identified: Information, sources of stress, awareness and acceptability of screening. Generally, women's knowledge of pre-eclampsia was limited. Most did not appear to be aware of their increased risk of developing the disease. Similarly, the majority of women were unaware as to why their blood pressure and urine were checked regularly. The introduction of a screening test for pre-eclampsia was favoured, with only a small number of women raising concerns related to the screening tests.
Conclusions: health care professionals need to raise awareness of pre-eclampsia in this high risk group. The introduction of a screening test for pre-eclampsia appears to be acceptable in this population, however, further research is required to validate these findings and also to explore the views of women in other high risk groups.

Introduction

Pre-eclampsia is a hypertensive disorder of pregnancy defined as new-onset hypertension accompanied by proteinuria, maternal organ dysfunction or foetal growth restriction after 20 weeks gestation (Tranquilli et al., 2014). It is associated with significant neonatal and maternal morbidity and mortality (Backes et al., 2011). Although currently the only effective treatment for pre-eclampsia is delivery, low-dose aspirin started in early pregnancy (~12–16 weeks) has been shown to reduce the risk of pre-eclampsia in women who are considered at high risk (Duley et al., 2007).

During pregnancy, maternal characteristics are reviewed to assess the risk of pre-eclampsia. Risk factors included age more 40 years, nulliparity, BMI greater than 30, history of pre-eclampsia and diabetes (English et al., 2015). In addition blood pressure and urinary protein levels are monitored regularly for signs of pre-eclampsia (NICE, 2016a). While recent National Institute for Health and Care Excellence (NICE) guidelines advocate the use of assays measuring angiogenic markers, such as Placental Growth Factor (PlGF) and soluble fms-like tyrosine kinase-1 (sFlt-1) ratios, to 'rule-out' pre-eclampsia in all women suspected of having the condition (NICE, 2016b), there is currently no effective screening test to predict pre-eclampsia in clinical practice.

Much research continues to focus on identification of accurate methods of predicting pre-eclampsia. Potential methods include the use of biochemical markers in blood and urine, biophysical measures, such as velocity indices obtained from ultrasound scans, and various combinations of these (O'Gorman et al., 2016; Poon and Nicolaides, 2014). However, very little research has explored the views of women on the acceptability of such tests. A study by Harris et al. (2014) assessed the psychological effect of providing women with risk information for pre-eclampsia. The study reported that women perceived there was an advantage to knowing the risk, despite the lack of effective treatment. Women felt that this information allowed them to

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http://dx.doi.org/10.1016/j.midw.2017.03.019
Received 27 September 2016; Received in revised form 20 March 2017; Accepted 29 March 2017
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Table 1
Phases of thematic analysis as discussed by Braun and Clarke (2006).

Phase	Description of process
1. Familiarizing yourself with the data	Transcribe the data, reading and re-reading the data, noting down initial ideas
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each theme
4. Reviewing themes	Checking if the themes work in relation to coded extracts (level 1) and the entire data set (level 2), generating a thematic map of the analysis
5. Defining and names themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling examples, final analysis of selected extracts, relating back to the analysis of the research question and literature, producing a scholarly report of the analysis

be more prepared and may even help them to recognise the symptoms earlier. However, it is likely that women will react differently to the outcome of a screening test due to their own perception of risk, which is not entirely based on medical diagnosis (Heaman et al., 2004). How women view their pregnancy will be affected by their perception of risk (Lee et al., 2014), with women labelled as high-risk being negatively affected psychosocially (Stahl and Hundley, 2003). It is of particular interest to determine if women with diabetes, who are already considered high-risk, feel that an additional test for risk is acceptable or if this leads to medicalisation of pregnancy as previously suggested (Harris et al., 2014). To date, there have been no studies which have explored the views of women on screening for pre-eclampsia prior to introduction of a screening test. In addition to this, the views of women with type 1 diabetes, who are at substantially increased risk of pre-eclampsia, have not been explored. Therefore, the aim of this study was to provide insight into the knowledge of pre-eclampsia and views on implementation of a potential screening test for the condition in women with type 1 diabetes.

Methods

Participants

Ethical approval was granted from the South-West Exeter Research Ethics Committee (REC Ref: 14/SW/1015) prior to commencement of the study. Participants were recruited via linkage with the specialist pre-pregnancy care clinic or the joint antenatal-metabolic clinic within the Belfast Health and Social Care trust (BHSCT). Women were invited to participate if they were planning a pregnancy (nulliparous women only), currently pregnant or if they were up to 1 year post-partum. Women were eligible if they were aged 18 years or over and had a diagnosis of pre-gestational type 1 diabetes. Exclusion criteria included poor understanding of written or spoken English, due to limited resources to facilitate translation, and serious adverse outcome in a previous pregnancy (i.e. malformation or stillbirth), as discussion around this topic may have been upsetting.

Procedure

All potential participants were identified and approached by a healthcare professional and given an information sheet and an invitation slip which they returned to the researcher if they were happy to be contacted. Post-natal women were mailed the invitation/permission slip and the information sheet, alongside a stamped addressed envelope. At least 48 hours elapsed between the participant giving consent and the researcher contacting them to discuss the study. Interviews were scheduled for a time and place that suited the participant. Interviews lasted approximately 30–45 minutes, which included completion of consent forms, a background questionnaire and the interview. Participants were informed that interview would be audio recorded to allow for analysis to be conducted afterwards. Semi-structured interviews were conducted to allow the participants to introduce their own themes and ideas in relation to the topic, whilst ensuring the discussion remained relevant. Topic guides were used to guide the interviews and covered three main areas: advice for planning for pregnancy, knowledge about pre-eclampsia and screening for pre-eclampsia. For example, in relation to screening, women were asked *'Currently, risks factors are the only way of assessing what risk you have of developing pre-eclampsia. What would your opinion be on the introduction of a screening test for pre-eclampsia? This test may involve a blood test in combination with a more detailed scan and the risk factors that are currently used. The test could be delivered around 13 weeks (close to your current date) or 24 weeks'*. It was deemed that women would have varying levels of knowledge in relation to pre-eclampsia so, if needed, an information leaflet from Action on Pre-eclampsia (Action on Pre-eclampsia, 2015) was discussed with women prior to discussion around screening for pre-eclampsia, allowing for more relevant discussion.

Data analysis

Interview recordings were transcribed verbatim and analysed through inductive thematic analysis, as described by Braun and Clarke (2006). Six stages are described and are presented in Table 1. All transcripts were first read and re-read by A.C.W., with any comments/statements of interest being underlined to allow development of preliminary coding ideas. Transcripts were then reviewed and coded systematically. Codes and statements that were related to each code were extracted and tabulated, with similar codes being grouped into themes. Themes were reviewed and divided into sub-themes if needed. Themes and sub-themes were discussed with a second researcher (V.A.H.) to ensure they reflected the data.

Findings

Demographics

A total of twenty-one women were invited to participate in the study, with thirteen agreeing to participate. Of the nine women that were invited but did not participate, eight did not respond when contacted by the researcher and one woman stated a lack of time. Two of the thirteen women were excluded (due to adverse incidents in a previous pregnancy), thus eleven women participated. Table 2 shows characteristics of participants. Of the eleven women that participated, two were planning a pregnancy and nine were currently pregnant. Of women who were currently pregnant, mean (SD) gestational age was 24.6 (8.8) weeks. No post-partum women who had experienced pre-eclampsia were recruited to the study.

Themes

Four main themes were identified from the thematic analysis: Women's reflection on information received, sources of stress, women's self-awareness of complications in pregnancy and factors affecting

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