

Survey of healthcare professionals regarding adjustment of antihypertensive medication(s) in the postnatal period in women with hypertensive disorders of pregnancy

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Abstract

Hypertensive disorders of pregnancy affect approximately one in ten pregnancies and often persist postpartum. Their postnatal course can be unpredictable and complications may occur, hence control remains important but is informed by little evidence. Clinicians from UK primary and secondary healthcare were invited to complete a survey regarding antihypertensive adjustment postpartum. The response rate was 101/390 (26%). Labetalol was the commonest antihypertensive used. Most participants reported following national guidelines when reducing, although not increasing, antihypertensive medications. The results suggest an unwarranted and unjustifiable variation in management – underlining the evidence gap – additional research is needed to inform the standardisation of care.

Keywords

Pre-eclampsia; gestational hypertension; antihypertensive medication; pregnancy; postpartum; survey

Introduction

There is no international consensus regarding the diagnostic criteria for hypertensive disorders of pregnancy. The National Institute for Health and Care Excellence (NICE) defines gestational hypertension as new-onset hypertension ($\geq 140/90$ mmHg) developing after 20 weeks gestation, and pre-eclampsia as new-onset hypertension with significant proteinuria [1]. Gestational hypertension affects 6% [2, 3] – 15% [4] of pregnancies, with pre-eclampsia affecting around 3% [5]. Hypertensive disorders of pregnancy remain a leading direct cause of maternal death in the UK, USA and worldwide [6-8].

Research to date has largely focussed on blood pressure (BP) management during pregnancy: a Cochrane review highlighted a paucity of evidence underpinning BP control postpartum despite recognition that hypertensive disorders of pregnancy (and complications thereof) can persist following delivery [9]. Approximately 30% of eclampsia occurs after birth, and 14-50% of these seizures happen beyond 48 hours [10-12]. A case series showed that 57% of strokes, sustained in association with severe pre-eclampsia, occurred postpartum [13]. A further retrospective cohort study found a post-discharge postpartum acute cerebrovascular event rate of 14.8/100,000 [14].

Despite this, most women with hypertensive disorders of pregnancy will be treatment-free by three months postpartum [15], so managing down-titration of antihypertensive medication during this time of potentially rapidly changing BP is a real issue. National and international guidance provides largely expert-derived thresholds for medication adjustment with little detail concerning, for example, dose reduction (frequency and amount), or management of multiple medications [1]. We surveyed healthcare professionals with experience of managing gestational hypertension seeking their views regarding the adjustment of antihypertensive medication in postnatal women with hypertensive disorders of pregnancy and mapped the variation in clinical practice.

Methods

The study received ethical approval from the University of Oxford (MS-IDREC-C1-2015-019).

We conducted an online survey of prescribing and non-prescribing clinicians, in primary and secondary care, in Berkshire, Buckinghamshire, Northamptonshire and Oxfordshire. This study did not involve any patient data, and no identifiable or confidential data about participants were recorded, simply job role, place of work and age.

We planned to invite 300 clinicians to participate (200 prescribers, 100 non-prescribers), aiming for a 50% response rate (150 responses). Participants were invited to complete the questionnaire by

email from February – June 2015. The email contained a link to the online survey and the participant information sheet was attached. Reminder emails were sent after three weeks. The primary outcome was clinicians' preference for which antihypertensive to use postpartum. Two questions were asked to elucidate this: Participants were asked to list all the antihypertensive medications they would consider using postpartum and then to choose which of these they used most commonly.

Results

Invitations were sent to 262 prescribing clinicians (obstetricians and general practitioners), and 128 non-prescribers (hospital and community midwives). Overall the response rate was 101/390 (26%): 81/262 (31%) prescribers and 20/128 (16%) non-prescribers (Table 1). In our analysis we have adjusted the denominators according to the number of participants who answered each question.

Labetalol was by far the most frequently used antihypertensive, with 89/98 (91%) stating that they would use it postpartum, 83/98 (85%) as their most common choice (Figure 1).

We asked clinicians to select the highest BP thresholds at which they would consider reducing the dose of antihypertensive. 59/94 (63%) selected a systolic BP (SBP), and 74/94 (79%) a diastolic BP (DBP) in line with NICE guidance (130-140/80-90mmHg). Midwives selected lower thresholds than prescribing clinicians: 12/16 (75%) selected a SBP of 110-120mmHg, 10/16 (63%) a DBP of 60-70mmHg. We asked participants to select the lowest BP thresholds at which they would increase the dose of antihypertensive. Fewer participants responded in line with NICE guidance: 43/94 (46%) selected 150mmHg SBP and 33/94 (35%) selected 100mmHg DBP. In this case more GPs selected lower thresholds than did obstetricians.

We asked prescribing clinicians to state how they would approach dose reduction of an antihypertensive in response to low BP. A diverse range of responses was given: most commonly that it would depend on the BP [25/78 (32%)] or be based on the prescribing formulary [19/78 (24%)]. Responses were heterogeneous regardless of respondents' specialty. We asked all clinicians about how down-titration of multiple medications should be approached. Again the responses varied although 43/94 (46%) stated that they would reduce one medication at a time.

Discussion

Overall this small survey suggested considerable heterogeneity in current management of hypertension postpartum. This may reflect the lack of evidence and guidance in this area: where guidance does exist, for example regarding selection of antihypertensive (labetalol as first line) or BP thresholds for medication adjustment, there was greater consistency in response, albeit, in the case of up-titration, more from obstetricians than GPs. This may be reflective of obstetricians' familiarity with using the same threshold for medication commencement or increase during pregnancy. However, as no guidance exists regarding how to reduce doses when down-titrating, or how to adjust multiple medications, it is perhaps not surprising that there were a wide range of responses from all groups. Such diversity may result in patients receiving different advice from different healthcare professionals, with potentially negative consequences for continuity of care. It may also result in differing standards of care across different NHS settings.

One strength of this survey was the broad spectrum of healthcare professionals surveyed, across a range of different settings, including both district general and teaching hospitals, urban and rural primary care centres. Its limitations were the low response rate (Table 1), and the relatively small number of responses (101 individuals). This might bias the results towards the opinions of clinicians with more interest or expertise in this area, rather than obtaining a true cross-sectional view.

Nevertheless, this survey supports the need for additional research about how to manage women with hypertension postpartum in order to optimise BP control and improve patient experience. Research is needed to formulate uniform approaches to BP monitoring and medication down-titration, and to streamline handover from secondary to primary care. One potential solution – effective in essential hypertension – could be BP self-management, using validated home BP monitors and a standardised algorithm for medication adjustment [16].

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Authors' contributions

AC, KT, LM, PL and RM all contributed to the study design. AC undertook the data collection and analysis. AC, KT, LM, PL and RM all contributed to the preparation of this manuscript and have seen and approved the final version.

Conflicts of interest

None declared.

Figures / Tables

Table 1: Summary of invitations and responses for survey

| | Invitations sent out | Responses |
|---------------|----------------------|-----------------------|
| GPs | 139 | 40 (29%) ¹ |
| Obstetricians | 123 | 41 (33%) |
| Midwives | 128 | 20 (16%) |
| TOTAL | 390 | 101 (26%) |

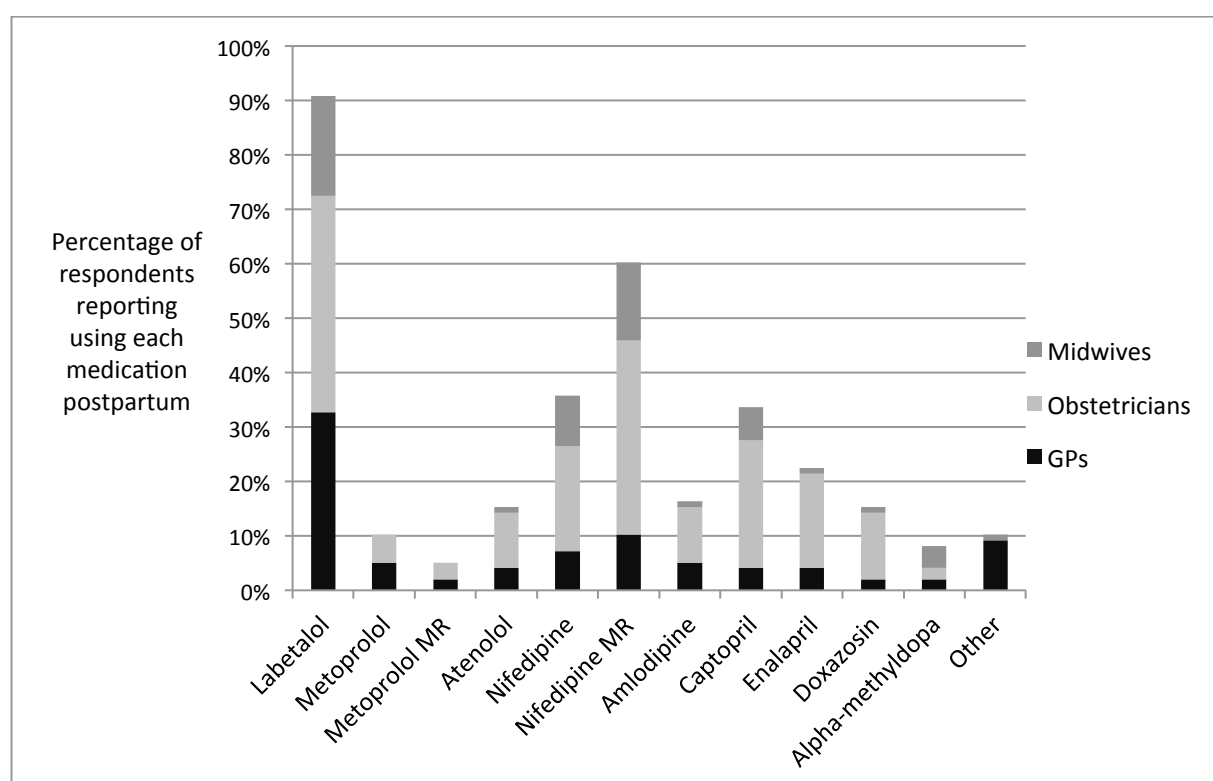


Figure 1: Postpartum medication selection^{2/3}

¹ 5 further responders, but no details completed

² 9 GPs commented they would not commence a new agent, but would continue the medication started by the patient's obstetric team. 1 midwife selected labetalol and also 'other' commenting she had not worked in the postnatal area for 12 years.

³ 2 GPs commented they rarely encountered this problem. 1 GP stated they would continue what the patient had been taking during pregnancy.

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