Accurate blood pressure measurement fundamental to early diagnosis in pregnancy

April 2 2015

Accurate blood pressure measurement (BP) is fundamental to the early diagnosis of hypertensive disorders in pregnancy, says a review published 1 April, 2015, in *The Obstetrician & Gynaecologist* (*TOG*).

The diagnosis and management of hypertensive disorders in pregnancy, as well as obstetric haemorrhage, sepsis and safe abortion, are guided in part by the measurement of BP. These conditions contribute to more than half of all maternal deaths globally, so the accuracy of BP measurement is vital, the review concludes.

The review explains that BP monitoring is the most important and frequent screening test in the antenatal period and should be undertaken by healthcare assistants, midwives, general practitioners and obstetricians on all women regularly. It identifies a range of factors that currently lead to inaccuracies in BP measurement, including poor technique and lack of training, and points out that certain methods may underestimate BP in pre-eclampsia.

Ninety-nine percent of maternal deaths occur in low and middle income countries, where contributing factors include a lack of access to cheap, easy to use BP devices; a greater risk of maternal and perinatal mortality and morbidity secondary to pre-eclampsia and shock; and substandard care leading to a large proportion of maternal deaths, often as a result of poor recognition of hypertension and need for treatment.

In addition, the accuracy of BP measurement impacts on maternal and

perinatal clinical outcomes, as highlighted in the 2006-2008 UK Confidential Enquiries Into Maternal Deaths report.1 The report found that the most common reason for substandard care in deaths secondary to pre-eclampsia/eclampsia was failure to recognise and treat hypertension. The same report3 also showed that the majority of maternal deaths could have been avoided if early warning signs of impending collapse were recognised and acted on more promptly, including as a result of accurate BP measurement.

BP is also vital in the detection of haemodynamic compromise, i.e. anything that may prevent proper blood flow, such as a hemorrhage, and the management of shock in pregnancy. Obstetric haemorrhage, pregnancy-related sepsis and unsafe termination of pregnancy are major contributors to approximately 46% of maternal deaths worldwide and can all present with signs and symptoms of shock.2

This review sets out a number of ways in which healthcare professionals can ensure that the BP measurements they make are more accurate. It highlights the current limited evidence regarding the use of vital signs in the diagnosis and management of maternal shock. It calls for more well-designed clinical studies and trials into interventions for women with hypertension in pregnancy. It says that research must also focus on determining the optimal vital sign predictor(s) and the thresholds of this predictor to guide assessment in obstetric shock.

Andrew H Shennan, Professor of Obstetrics at the Women's Health Academic Centre in London and co-author of the review says: "There are several things clinicians can do to increase the accuracy of their BP measurement, such as becoming more aware of the advantages and disadvantages of the various available devices; having the confidence to raise concerns regarding any devices that are inaccurate for use in pregnancy; and correcting any poor techniques they've observed."

Jason Waugh, TOG Editor-In-Chief adds: "As this review shows, the ability to measure blood pressure accurately is an indispensable skill for obstetricians, midwives and other healthcare workers, regardless of setting, in order to prevent maternal and perinatal morbidity and mortality, both in the UK and worldwide. This review is helpful in enabling clinicians to do everything they can to ensure that their BP measurement is accurate."

More information: H L Nathan, K Duhig, N L Hezelgrave, L C Chappell, A H Shennan. Blood pressure measurement in pregnancy. The Obstetrician & Gynaecologist 2015; onlinelibrary.wiley.com/doi/10 … 1/tog.12173/abstract

Cantwell R, Clutton-Brock T, Cooper G, Dawson A, Drife J, Garrod D, et al. Saving Mothers' Lives: Reviewing maternal deaths to make motherhood safer: 2006–2008. The Eighth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom. BJOG 2011; 118 (Suppl 1):1–203.

Steegers EA, von Dadelszen P, Duvekot JJ, Pijnenborg R. Pre-eclampsia. Lancet 2010; 376: 631–44.

Say L, Chou D, Gemmill A, Tunçalp Ö, Moller AB, Daniels J, et al. Global causes of maternal death: a WHO systematic analysis. The Lancet Global Health 2014; 2: e323–33.

Provided by Wiley