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Head descent, moulding and other intrapartum clinical findings in the prediction of cephalopelvic disproportion

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DECLARATION

I, Eckhart Johannes Buchmann, declare that this thesis is my own work. It is being submitted for the degree of Doctor of Philosophy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

E. J. Buchmann

.....

6 day of July 2007

In memory of my mother

Elisabeth Marie Buchmann

1.3.1926 – 6.4.2001

PUBLICATIONS AND PRESENTATIONS

Papers presented, related to the contents of this thesis:

Buchmann EJ. Fifths, station, sagittal moulding and lambdoid moulding – do they predict cephalopelvic disproportion? 25th Conference on Priorities in Perinatal Care in Southern Africa; Champagne Sports Resort, KwaZulu-Natal, 7-10 March 2006.

Buchmann EJ. Cervical dilatation, descent, moulding and position - how good are obstetricians with clinical signs of labour progress? 25th Conference on Priorities in Perinatal Care in Southern Africa; Champagne Sports Resort, KwaZulu-Natal, 7-10 March 2006.

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ABSTRACT

Cephalopelvic disproportion (CPD) is a common and serious obstetric condition, especially in sub-Saharan Africa. Recognition relies on clinical observations, such as cervical dilatation, head descent, moulding, and size of fetus, all made in a trial of labour. No prospective studies have investigated intrapartum clinical observations and their predictive value for CPD. The objectives of this research were 1) to determine the association of intrapartum clinical findings, especially level of head and moulding, with the outcome of CPD, 2) to determine inter-observer agreement of these findings between clinicians, and 3) to compare intrapartum clinical palpation with symphysis-fundal height (SFH) measurement in the prediction of birth weight.

A prospective cross-sectional comparative study was done in the Chris Hani Baragwanath labour ward, a large referral centre. The subjects were women at term, in the active phase of labour, with vertex presentations. The author, blinded to previous clinical or ultrasound findings, performed clinical assessments at the same time as the women's attending clinicians. His observations were not divulged to the clinicians and he did not participate in obstetric management of the women. The primary outcome measures were CPD, defined as caesarean section for poor progress, and birth weight.

Five hundred and eight women were examined, of whom 113 (22.2%) had CPD. Multivariate analysis identified short maternal stature, increased SFH, lesser cervical dilatation, long duration of labour, high degree of parieto-parietal moulding, and high degree of caput succedaneum as independent predictors for CPD. Fetal position and

occipito-parietal moulding were not predictive, and level of head, by fifths and by station, was poorly predictive. Inter-observer agreement between the author and attending clinicians was moderate for cervical dilatation, engagement of the head in fifths, and caput succedaneum, and poor for engagement of the head by station. SFH measurement was a slightly better predictor of birth weight than clinical fetal weight estimation.

The clinical observations that were shown to be predictive for CPD may be useful adjuncts in the management of a trial of labour. Inter-observer agreement of these findings is at best moderate. Measurement of SFH deserves more attention as an intrapartum predictor of birth weight.

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