

Title: MATERNAL HYPOTENSION: ARE CURRENT CRITERIA VALID?
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Introduction. The incidence of hypotension associated with regional anesthesia for cesarean section remains high despite the use of prophylactic measures.^{1,2} Usually, maternal hypotension is defined as a decrease in systolic arterial pressure (SAP) below 100 mmHg or a 20 to 30 per cent decrease from preanesthetic values. However, these criteria may be inappropriate because many gravidas have SAP below 100 mmHg during sleep³ and preanesthetic values may be increased due to pain and anxiety. This study was designed to describe the extent of normal fluctuations in blood pressure preoperatively and to relate these findings to the current criteria that define hypotension in the pregnant patient.

Methods. Five term pregnant patients aged 17-27 years, undergoing elective repeat cesarean sections were studied throughout the preoperative night and the postanesthetic recovery period. The protocol was approved by the Human Experimentation Committee and informed consent was obtained from all patients. Blood pressure was monitored and recorded continuously via an intra-arterial cannula under constant infusion. Fetal heart rate was monitored and recorded with an external ultrasonic transducer. We determined four distinct arterial pressure values. 1) The clinic SAP (C-SAP) was the mean SAP recorded during all prenatal visits. 2) The resting SAP (R-SAP) was the mean SAP during one hour the night before surgery, one hour after arterial cannulation. 3) The lowest SAP (L-SAP) was defined as the lowest SAP recorded during the night before surgery. 4) The preanesthetic SAP (PA-SAP) was the mean of several measurements taken in the operating suite before induction of anesthesia.

Results. All patients had a markedly decreased SAP at night during sleep and all patients' SAPs decreased well below 100 mmHg at some point during the night. Fetal monitoring during these episodes did not reveal any significant changes in fetal heart rate. The L-SAP was 33 per cent lower than the mean P-SAP, 26 per cent lower than the mean R-SAP, and 19 per

cent lower than the mean C-SAP. The mean PA-SAP was 15 per cent higher than the mean C-SAP and 12 per cent higher than the mean R-SAP. The results are summarized in Table 1.

Pt #	C-SAP (sd) mmHg	R-SAP (sd) mmHg	L-SAP (sd) mmHg	PA-SAP (sd) mmHg	Duration SAP < 100 mmHg (min)
1	114.3 (5.3)	107.1 (4.3)	85	122.8 (13.1)	101
2	113.7 (6.9)	115.4 (12.9)	78	144.4 (7.6)	262
3	94.0 (8.7)	144.3 (13.7)	96	139.2 (4.4)	9
4	116.3 (10.2)	117.9 (5.4)	87	128.0 (12.5)	48
5	101.2 (6.9)	103.8 (3.0)	94	117.9 (3.8)	77
Mean	107.9	117.7	88 (7.2)	130.5	99.4

SAP=systolic arterial pressure, C=clinic, R=resting, L=lowest PA=preanesthetic

Discussion. The data demonstrate wide fluctuations of maternal blood pressure preoperatively. When defining hypotension as a per cent decrease from preoperative values, readings obtained in the immediate preanesthetic period may not be representative of resting systolic pressures. Moreover, to label systolic pressures less than 100 mmHg as hypotensive may be inappropriate because similar values are commonly seen preoperatively and have no deleterious effects on mother or fetus.

References.

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3. Redman CWG, Beilin LJ, Bonnar J: Variability of blood pressure in normal and abnormal pregnancy, in: *Hypertension in Pregnancy*. Lindheimer M, Katz AI (eds), New York. John Wiley & Sons, Inc., 1976, pp 53-60.