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Husband-induced Hypotension

To the Editor:—We wish to report a case of artifactual hypotension after subarachnoid block for cesarean section. A 27-yr-old, 95-kg woman was scheduled for elective repeat cesarean section under subarachnoid anesthesia. Her history and physical examination were remarkable only for moderate obesity. Before anesthesia, 1 l of lactated Ringer's solution and 500 ml 6% hetastarch in 0.9% saline were administered. Blood pressure was monitored with a Dinamap automatic oscillometric blood pressure monitor. Subarachnoid block was performed at the L3-L4 interspace with 12 mg hyperbaric bupivacaine, 10 µg fentanyl, and 0.2 mg preservative-free morphine. A sensory block to the T4 dermatome developed over the next 5 min. There was no significant hypotension at that time, and surgery began. Five minutes after the start of surgery, the patient's blood pressure progressively decreased over 3 min to 65/30 mmHg. A bolus of 500 ml 0.9% saline and intravenous ephedrine, 25 mg in divided doses, were administered over the next several minutes with no significant improvement in blood pressure; however, her heart rate increased to 140 beats/min. The patient denied any symptoms of lightheadedness or nausea, and there was no evidence for cephalad extension of the block above the T4 dermatome.

At that time, it was noted that the patient's husband was massaging her left upper arm, where the blood pressure cuff was located. He was instructed to stop, and the subsequent blood pressure measured by the monitor was 120/60 mmHg. The patient's blood pressure remained stable throughout surgery, and she had an uneventful recovery.

Automatic oscillometric blood pressure monitors are used routinely in the operating room for measurement of blood pressure. This case emphasizes a possible source of error in blood pressure measurement using these devices, which identify systolic, mean, and diastolic pressures by sampling oscillations in the cuff and determining parameter-identification points for each measurement.¹ At the beginning

of each measurement cycle, the cuff is inflated to a predetermined point and then held at constant pressure while the presence or absence of oscillations is determined. If no oscillations are detected, the cuff pressure is considered to be greater than the systolic pressure, and the cuff is deflated by a predetermined increment. The systolic pressure is defined as the pressure at which the amplitude of oscillations increases most rapidly. The mean arterial pressure is defined as the pressure at which maximal oscillations occur, and the diastolic pressure is defined as the pressure at which the maximal decline in oscillation amplitude occurs.

An important source of error in oscillometric blood pressure determination is cuff movement. A variety of circumstances can result in cuff movement, including patient movement, patient shivering, or "bumping" of the cuff by the surgeon. In the case described here, excessive movement of the cuff by the patient's husband resulted in a significant underestimation of blood pressure. In the event of hypotension reported by an oscillometric blood pressure monitor, blood pressure should be checked in a second extremity to rule out artifact.

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Reference

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