

continuing education

An informal survey of 22 staff nurses and instructors on postpartum units in two Ann Arbor hospitals revealed the following: Although the nurses had a general idea about how to assess bladder distention, 12 of them had no idea where written instructions could be found, 3 relied mainly on experience they had had on the clinical unit, 1 thought a procedure existed in the postpartum procedure manual, and the 9 remaining nurses were familiar with a short paragraph in one nursing text.¹

Bladder Assessment in the Postpartum Patient

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Bladder assessment is a crucial function of the postpartum nurse. Information about the rationale for and the method of performing bladder assessment is meager in nursing literature as well as in other sources. The anatomical-physiological facts about the effects of pregnancy and delivery on the urinary tract are presented. Bladder distention and the methods of ascertaining it are described, along with ways to encourage voiding. The article also covers the issues of timing and volume of voidings of the postpartum patient.

Information about bladder assessment (both in nursing literature and other sources) is meager. Yet one of the crucial functions of the nurse caring for a woman in the first few hours following the delivery of a baby is to determine and promote normal bladder function.

Anatomical-Physiological Facts

The anatomy of the urinary tract involves two ureters which transport urine from the kidneys to the urinary bladder. Here the urine is temporarily stored until it is passed out of the body via the urethra. When about 300 ml of urine has accumulated, the desire to empty the bladder is aroused. Micturition (emptying of the urinary bladder) can be inhibited until about 700 ml has accumulated, at which time pain may be felt and micturition becomes urgent.² "The sense of urgency to void when the bladder reaches subjective fullness is the result of volume. . . . Voluntary voiding in women may occur as the

result of increased intraabdominal pressure (extrinsic) alone, or as a combination of intrinsic and extrinsic pressures."³

The urinary tract in pregnant women varies some, but does not change in all respects. The gross and microscopic structure of the kidney in pregnancy is no different.⁴ Bladder tone is also not affected by pregnancy.⁵ But the variations in the urinary tract of pregnant women can be important. First, early in pregnancy the capacity of the bladder is reduced due to the spatial requirements of the growing uterus in the pelvic cavity. As the uterus continues to enlarge, both the uterus and the bladder rise from the pelvic cavity into the abdominal region. This upward movement allows for a temporary increase in bladder capacity to the point where it approaches the nonpregnant capacity. Near the end of pregnancy there is increased pressure exerted on the bladder as the presenting fetal parts settle into the pelvic cavity;⁶ this once again means a decrease in bladder capacity.

The second variation, ureteral dilatation (accompanied by decreased peristaltic movements), is noted as early as the second trimester and is believed to be caused by hormonal changes that occur during pregnancy.^{4,6} As a result of urine accumulating in the kidneys because it is not being carried as rapidly as usual from the kidneys to the bladder, there is an increase in urinary tract infections (UTI's) during pregnancy.⁶ Other factors also contribute to UTI's during pregnancy. For example, ureteral obstruction may occur when the enlarged uterus compresses the ureters.^{4,7} Another factor is the high nutrient content of urine in pregnancy, which makes it a good culture medium for bacteria; the mean bacterial count of *Escherichia coli* following 6 hours' incubation in pregnant urine is double that in urine of nonpregnant women.⁵

Third, as a result of hormonal secretions, there is increased renal function during pregnancy and an

increase in both total water and plasma volume.⁸ Blood volume increases approximately 30% during pregnancy.⁹

Following delivery, the urinary tract does not immediately return to its nonpregnant state. There are several intrinsic and extrinsic factors which affect the urinary tract's function at this time.

Intrinsic factors

Due to decreased intraabdominal pressure and relaxed, stretched abdominal muscles in the postpartum patient, bladder capacity is increased.^{6,10}

The alteration of hormonal activity following delivery changes the fluid production.⁸ The excess water that was in the blood and which was retained in the body tissues during pregnancy is primarily excreted by the kidneys. This causes marked increase in the daily output of urine (diuresis). Most sources^{11,12} agree that 2 to 5 days postpartum is when diuresis occurs.

Tenderness or edema of the vulva and perineum or perineal pain may cause reflex spasm of the urethra; this interferes with the normal voiding process.

More often voiding problems exist in the primigravida,¹³ for the most part because of the longer labor.

Fear that voiding may be painful is common among postpartum patients and is an intrinsic factor which may hinder voluntary voiding.

Extrinsic factors

It is a common nursing practice to force fluids in the early postpartum period. Dehydration from perspiration, blood loss, amniotic fluid loss, etc., warrants replacement of fluids in the form of oral and/or intravenous (I.V.) fluids. I.V.'s are often desirable as a means of providing oxytocic drugs to the patient. This increase in fluid intake eventually fills the bladder. The bladder might be somewhat desensitized due to anesthesia used during labor and delivery. This is especially common for

the patient who received a saddle block or caudal anesthesia. These anesthetics affect the patient's perception of bladder fullness, as well as the capacity to empty the bladder spontaneously.¹⁴

An unpublished study recently performed at St. Joseph Mercy Hospital in Ann Arbor, Michigan, involved all primiparas who had had saddle block or caudal anesthesia; they were all catheterized within 2 hours after their deliveries. Those multiparas with the same anesthesia who could not void were also catheterized within the 2-hour period. The large majority of these patients, when catheterized, excreted greater than 500 cc urine. This was interpreted to mean that distention would have occurred if the bladder had not been emptied at that time. As an outcome of the study, a hospital policy was established that all newly delivered patients who have received saddle block or caudal anesthesia are to be catheterized before leaving the recovery room (normally a 2-hour stay) if they are unable to void voluntarily. This hospital does give 95% of its newly delivered patients a large volume of fluids—1000 cc I.V. and 600 cc orally—during this 2-hour period; the advantages of hydrating the patient are felt to far outweigh the possible need to empty the bladder by catheterization.

Trauma is another factor which affects the urinary tract's function. Trauma to the bladder and/or urethra during vaginal delivery may cause neural blockade or edema which also result in impaired bladder function. Trauma may be due to a foreign object, e.g., instrumental forceps, or to the pressure of the fetus for a short or extended period of time. Bladder tone lost due to trauma during labor or to anesthesia used during delivery is usually restored within 24 to 48 hours.⁶

Bladder Distention—What Is It?

A "full bladder," a "distended bladder," an "overly-distended bladder"—all of these terms refer to

a bladder which is bloated and turgid and needs to be emptied. If not, harmful repercussions may occur. "A bladder that is allowed to become distended takes longer to regain its tone and is easily infected."⁶ A full bladder is also one of the causes of postpartum hemorrhage.

Methods of Ascertaining Bladder Distention

By looking at the contour of the abdominal wall, an outpouching above the symphysis pubis and in front of the uterus is a definite clue to a distended bladder. By palpating the fundus, this outpouching will be accentuated if the bladder is distended. Suspicion of distention should exist if the uterine fundus is deviated to one side or the fundus is rising. Other clues are heavy or bright rubra lochia and/or a boggy uterus. Palpation of the abdominal wall will reveal a firm tone for a contracted uterus and a ballotable, fluid-filled bladder when it is distended. Some urine might be expressed with such palpation.

Consideration should be given to the amount and nature of fluid intake the patient has had since she last voided or was catheterized, because the rate of accumulation of urine in the bladder following delivery may vary. The antidiuretic effect of an oxytocic drug infused during labor and/or delivery is abruptly halted when the drug is stopped, and diuresis rapidly begins.¹⁴ The nurse should anticipate that with the intake of a large volume of fluid and/or the discontinuance of an oxytocic infusion, the bladder will be filling. It has happened that a patient has been catheterized and 1000 ml of urine has been obtained even though a full bladder has not been observed or palpated and the fundus has been found near the pubic bone. In such an instance, it is possible that the bladder has been displaced behind the uterus.

If the patient has not been sedated or anesthetized, she might first express the desire to void when the

nurse palpates the bladder. The power of suggestion that the bladder is filling often is a helpful technique in fostering the patient's voluntary emptying of her bladder. The nurse should assess the bladder for distention at each postpartum check (usually every 15 minutes in the early postpartum period). On finding beginning signs of distention, methods to promote the emptying of the bladder should begin.

Ways to Encourage Voiding

In most instances the patient can empty her bladder on her own. She will need to be provided with a bedpan, usually, or helped up to the toilet. The patient's comfort and privacy are important. Providing some fluid to drink before or at the time of a voiding attempt may encourage voiding. Also the presence of the sound or actual flow of warm fluid over the perineum may be a helpful stimulus.

Many times administering a pain medication 15 minutes prior to the voiding attempt will alleviate some of the discomfort from the episiotomy site which otherwise may hinder the patient from attempting to even sit in a position compatible with female voiding. Ice to the perineum may prove to be just as effective as pain medication.

Unfortunately, most women come to the hospital with the fear of catheterization already ingrained in them; therefore, they are willing to do almost anything to avoid catheterization.

How Often, How Much Is Enough?

Not only must a patient void, but she must void a satisfactory amount—at least 100 ml. If a smaller amount is voided but the bladder is not distended, the lochia is normal, and the fundus is firm, approximately an hour can pass before the second voiding attempt. Most patients who can void once can empty

their bladder the next time.

An empty bladder is said to exist when no bladder can be palpated, the uterine fundus can be palpated to its lowest previous position and remains there, the lochia is a normal dark color, and the patient has no urge to void.

If a patient continues to void small amounts, residual urine should be suspected; this urine is a result of overflow of a distended bladder. If this condition is allowed to persist, infection of the bladder (cystitis) and/or kidneys (pyelitis) may develop. On getting a residual urine specimen (by catheterization within 5 minutes following voiding), an incomplete voiding has occurred if the specimen is 60 ml or more.¹⁰ If more than 150 ml of residual urine is taken by catheterization, the nurse should consider leaving the catheter in place.⁹

Normal Postpartum Voiding

A normal voiding amount is 500 to 1000 ml in the postpartum patient. This is two to three times what is normal for a nonpostpartum patient.¹⁰ Urine output on the second through fifth postpartum day may be as much as 3000 ml.⁹

With these facts and nursing interventions in mind, the nurse should be prepared to make the critical judgments when assessing the bladder in a recently delivered postpartum patient.

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