Differential Diagnosis If symptoms of urinary frequency, enuresis, nocturia, and/or persistent thirst are present in the absence of glucosuria, the possibility of DI should be evaluated by collecting a 24-h urine on unrestricted fluid intake. If the osmolarity is <280 mosm/L and the volume >50 mL/kg per day, the patient has DI and should be evaluated further to determine the type. Sometimes the type can be inferred from the clinical setting. Often, however, this information is lacking, ambiguous, or even misleading, and other approaches to differential diagnosis are needed. In the few patients in whom basal plasma osmolarity and/or sodium are above the normal range, a fluid deprivation test is unnecessary and potentially hazardous because primary polydipsia can be excluded. Therefore, an injection of AVP (0.5 IU) or desmopressin (2 μg) followed by a repeat measurement of urine osmolarity will suffice to determine if the DI is due to a severe defect in the secretion or action of AVP. However, if basal plasma osmolarity and sodium are within normal limits, as they usually are, some other method is needed to determine the type of DI. The traditional approach is to stop all fluid intake for 4–6 h and closely monitor the changes in body weight, plasma osmolarity/sodium, and urine osmolarity. If plasma osmolarity and sodium rise above the normal range *without* concentrating the urine, primary polydipsia is excluded, and the effect on urine osmolarity of injecting AVP or desmopressin will determine if the patient has severe pituitary or severe nephrogenic DI. If, however, fluid deprivation results in concentration of the urine, the effect on urine osmolarity of injecting AVP or desmopressin does *not* distinguish reliably between *partial* pituitary DI, *partial* nephrogenic DI, and primary polydipsia because all three disorders temporarily diminish renal concentrating capacity to a variable extent depending on the severity of the basal polyuria.

The ambiguities inherent in the indirect method of differential diagnosis usually can be avoided by measuring plasma AVP before and during 4–6 h of complete fluid deprivation and relating these values to the concurrent level of plasma and urine osmolarity (Fig. 381-3). This approach distinguishes reliably between pituitary and nephrogenic DI even when the defect in AVP secretion or action is partial. It also differentiates partial pituitary DI from primary