during a bladder contraction and voiding, is a frequent problem that prevents complete bladder emptying in suprasacral SCI.[29,30] High intravesical pressures due to prolonged bladder contractions may cause hydronephrosis and renal deterioration. Impaired detrusor contractility may continue for patients with injuries at S2 or below. These individuals may experience progressively decreased bladder compliance, resulting in increased intravesical pressure with filling that can contribute to upper tract deterioration over time.[31]

Indwelling catheterization is commonly used for initial bladder management to monitor urinary output when maintaining fluid balance is essential.[32] Urethral catheterization is most commonly used initially.

Suprapubic catheter placement is considered as the initial bladder management method for individuals with known or suspected urethral abnormalities, such as stricture, false passages, bladder neck obstruction or urethral fistula, perineal skin breakdown, or the presence of prostatitis, urethritis, or epididymo-orchitis. Suprapubic catheter placement can be performed under local anesthesia; however, consider general or spinal anesthesia to manage autonomic dysreflexia while distending the bladder for safe catheter placement.[33]

Intermittent catheterization is recommended as the optimal bladder management method once precise urinary output measurement is no longer necessary. Intermittent catheterization is performed 4 to 6 times every 24 hours, but it can vary depending on oral fluid intake. Avoid bladder distension and bladder volumes greater than 400 mL to reduce the risk for UTI.[34] Intermittent catheterization may not be feasible for individuals with abnormal urethral anatomy, cognitive impairment, inability to adhere to a catheterization schedule, persistently high fluid intake, or a tendency to develop autonomic dysreflexia with bladder filling despite catheterization.

UTI and urethral trauma are the most frequent complications related to intermittent catheterization. However, the overall incidence of UTI, bladder stones, poor bladder compliance, upper tract deterioration, and urethral erosions is higher in patients treated with indwelling catheters compared with intermittent catheterization for bladder management. When indwelling catheterization is indicated beyond the acute phase of traumatic SCI, suprapubic catheterization is recommended as a long-term option. It avoids the risk of irreversible urethral injury and lower urinary tract complications such as epididymitis and periurethral abscess. Refer patients for ongoing urologic follow-up including urodynamic assessment following their acute hospitalization.

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