Millions of the general population, particularly women and the elderly, have bladder dysfunction. Although most studies have mainly focused on incontinence, more recently, attention has also included overactive bladder (OAB). Therefore, this chapter will be focused on urinary incontinence (UI) and OAB, because both of them constitute the most common causes of urinary dysfunction.

In 1988, the International Continence Society (ICS) defined UI as the involuntary loss of urine that is objectively demonstrable and is a social or hygienic problem. Recently, the ICS redefined it as the complaint of any involuntary leakage of urine. The impact of the new definition is that more cases of UI will be discovered and hopefully treated. Urinary incontinence symptoms mainly are stress (SUI), which is leakage with physical exertion, urge (UUI), which is leakage with a strong desire to void, and mixed, which is a combination of SUI and UUI. When SUI is urodynamically proven, it is also called genuine stress incontinence (GSI). Urinary urgency and frequency with urge incontinence has recently been defined as OAB/wet. There are other types of incontinence, although less frequent, including overflow incontinence, functional, and extraurethral incontinence.

**Urinary Incontinence**

**Potential Risk Factors**

Epidemiologic studies conducted in various populations reveal a number of variables related to the development of UI including several possible risk factors. 

**Age**

Most studies have found that the prevalence of UI tends to increase with advancing age. Prevalence has always been higher in institutionalized adults because residents in institutions tend to be older and more impaired than community dwellers. Some studies have found that the proportions of types of UI differ by age. A survey of young and middle-aged women suggests that pure stress incontinence predominates in that age group. Other surveys of older women suggest that urge and mixed incontinence predominate.

**Race**

Ethnicity may be associated with UI. There are several studies of non-Caucasians showing a wide variation in prevalence. These studies have used different methods and definitions. Therefore, the results are difficult to compare. Mattox and Bhattia evaluated the prevalence of incontinence among white and Hispanic women with similar age, gravity, and parity who had undergone urodynamic evaluation. The prevalence of OAB/wet (urge incontinence) was 18% in the white population and 9% in the Hispanic population. In another study of more than 4000 women 70 years of age and older, the prevalence of involuntary urine loss was significantly higher in white women (23%) than in black women (16%). There are reports stating that black South Africans rarely develop stress incontinence, and they develop the related disorder of genital prolapse at a rate 80 times lower than whites. The authors explained the rarity of stress incontinence among blacks as a function of differing urethral pressures and length as well as pubococygeal muscle strength. In the United States, Howard et al. reported clinical data suggesting that African American women have higher urethral closure pressure, larger urethral volume, and greater vesical mobility.

**Sex**

The prevalence rates of UI are higher in women than in men. The prevalence range for UI is 4.5% to 53% in women and 1.6% to 24% in men.
Pregnancy and Childbirth

Urinary incontinence in women is often assumed to be attributable to the effects of pregnancy and childbirth. The literature shows that UI is a more common occurrence among pregnant women compared with other groups of women, with reported prevalence rates of 31% and 60%.\(^1\)\(^7\)\(^8\) Urinary incontinence during pregnancy is a self-limited condition. Viktrup et al.\(^1\)\(^9\) found a 28% prevalence rate of SUI during pregnancy, with 16% becoming free of symptoms in the puerperium. It is still questionable whether pregnancy itself is a risk factor for UI in later life or if it is the vaginal delivery that is the main risk factor. The authors also compared continent women having delivered vaginally with women who underwent a cesarean delivery and found a difference in favor of cesarean delivery. However, 3 months after delivery, the difference became statistically insignificant.

A link between UI and parity has been demonstrated, and several explanations have been offered. First, childbirth may result in pelvic floor laxity as a consequence of weakening and stretching of the muscles and connective tissue during delivery. Second, damage may occur as a result of spontaneous lacerations and episiotomies during delivery. Both may result in impairment of the position and support of the pelvic organs. Third, the stretching of the pelvic tissues during vaginal delivery may damage the pudendal and pelvic nerves, as well as the muscles and connective tissue of the pelvic floor.\(^2\)\(^0\)

Menopause

Postmenopausal women are more likely to have UI than premenopausal women. Evidence that atrophy of the urogenital mucosa can be reversed with estrogen suggests that estrogen loss contributes to the problem. However, the literature is inconsistent in describing the role of menopause and estrogen loss as significant contributors. Rekers et al.\(^2\)\(^1\) compared premenopausal women with postmenopausal women and found no significant difference in the prevalence of UI between the two groups. Another study found that women who experience surgical menopause had a higher rate of UI (36%) compared with those who experience natural menopause (22%).\(^2\)\(^2\)

Hysterectomy

The role of hysterectomy is controversial. Some studies have shown significant association between UI and hysterectomy, as well as oophorectomy. Brown et al.\(^2\)\(^3\) explained this association by the fact that hysterectomy may disturb the musculofascial attachments of the bladder to the surrounding pelvic wall, and oophorectomy results in surgical menopause.

Obesity

Obesity and increased body mass index have been shown to be frequently associated with UI. Obesity may cause stretching and weakening of the muscles, nerves, and other structures of the pelvic floor. There is clear epidemiologic support for the role of obesity in UI.\(^2\)\(^4\)

Other Factors

There are many other risk factors that may contribute to the development of UI. Patients with dementia, Parkinson’s disease, multiple sclerosis, and stroke are at a high risk of manifesting bladder dysfunction during the course of their disease. Patients lacking mental orientation have a greater risk of being incontinent than those with normal mental status. Studies in nursing homes have suggested a link between dementia and UI.\(^2\)\(^5\)\(^2\)\(^6\)

There are other factors correlated with urinary dysfunction, including chronic obstructive lung diseases,\(^2\)\(^7\) smoking,\(^2\)\(^8\) diabetes,\(^3\) constipation, fecal incontinence,\(^2\)\(^5\) impaired function of levator muscles, genital prolapse,\(^2\)\(^9\) previous gynecologic surgery, perineal suturing,\(^3\)\(^0\) and history of childhood enuresis.\(^3\)\(^1\)

Overactive Bladder

Epidemiology of Overactive Bladder

Overactive bladder is defined by the ICS as a medical condition referring to the urinary symptoms of frequency and urgency, with or without urge incontinence, when appearing in the absence of local pathologic factors.\(^1\)

Spectrum of Overactive Bladder

Patients with OAB experience a wide range of symptoms, including frequency, both daytime and nighttime (nocturia), as well as urgency. A continuum of symptomatology is necessary to accurately describe OAB. Approximately one-third of patients with OAB have urge incontinence.\(^3\)\(^2\)

National Telephone Survey

The National Overactive Bladder Evaluation (NOBLE) program is a nationwide, population-based survey of the United States adult population. The goals of the program are to describe the epidemiology of OAB symptoms, assess the use of coping strategies among people with OAB, and to estimate the burden of the disease. A validated computer-assisted telephone interview was conducted to assess bladder symptoms and coping behavior. In all, 17,231 households were contacted by telephone from November