Stress urinary incontinence is caused by the inability of the continence mechanism to deal with episodes of increased intra-abdominal pressure. It is much more common in females than males due to the rigours of childbirth and the relatively poor support of the female pelvic floor.

**Summary**

Stress urinary incontinence is the leakage of urine associated with episodes of increased intra-abdominal pressure such as coughing or sneezing. The continence mechanism cannot deal with elevations in intra-abdominal pressure that is transmitted onto the bladder, causing urine to leak from the urethra.

Stress incontinence is caused either by loss of bladder neck and urethral support or by inherent urethral sphincter deficiency. Hypermobility of the bladder neck and urethra is usually related to the effects of childbirth. Urethral sphincter dysfunction can be caused by childbirth injury, trauma, radiation, previous surgery or postmenopausal atrophy. Stress urinary incontinence in males is usually due to urethral sphincter injury related to TURP (1%), radical prostatectomy (5-20%), pelvic fracture, radiation or trauma.

**Management of a patient with stress incontinence**

**Diagnosis**

A careful history and physical examination will usually be sufficient to indicate the type of incontinence. The classic symptom is that of the loss of urine associated with episodes of increased abdominal pressure such as coughing or sneezing. This loss of urine can usually be demonstrated on physical examination by asking the patient to cough while the bladder is full, and observing for any signs of urethral and bladder neck descent and loss of urine. In true stress incontinence there should not be significant symptoms of instability such as frequency, urgency or urge incontinence.

In a classic case of stress urinary incontinence, without any evidence of urinary urgency or frequency, special tests are not necessarily indicated, especially if non-surgical treatment is going to be offered. Clinical findings should be confirmed by urodynamic testing prior to embarking on surgery for these patients. Urodynamic testing should demonstrate a stable bladder and a low bladder outlet resistance.

**Treatment**

**Non-medical treatment** options include weight loss, stopping smoking, pelvic floor exercises, biofeedback and electrical stimulation. Non-medical treatment can be very effective in motivated patients with minor degrees of stress incontinence. The short-term results are often very good, but this is not always maintained in the long term. Published studies quote cure/improvement rates of 50-80% for pelvic floor exercises.

**Medical treatment** includes oestrogens, alpha-agonists and combinations of the above. It does not play a great role in stress incontinence. Postmenopausal atrophy affects the closure of the urethra. Oestrogen, which can be taken orally or applied locally, restores the bulk of urethral tissue leading to more effective closure. Alpha-agonists increase the tone in the bladder neck, thereby increasing outflow resistance. Some studies indicate a beneficial effect using a combination of oestrogen and an alpha-agonist in older post-menopausal women.

**Surgical treatment** options include periurethral injections of bulking agents, suspension operations, sling operations and rarely, artificial urinary sphincters. Periurethral injections involve the injection of bulking agents into the urethra to improve effective urethral closure. Commonly used agents include fat, collagen, Teflon paste and silicon particles. Injection therapy is suitable for women with intrinsic sphincter deficiency rather than hypermobility, as well as for men with post-prostatectomy incontinence. The major advantage of injection therapy is that it is a minor procedure. Short-term results are good but are often not maintained long term.

The various suspension operations restore the normal anatomy in patients with hypermobility and improve the support of the urethra and the bladder neck. Open suspension operations like the Burch suspension provide the best long-term results. The various needle suspensions have fallen into disuse due to high failure rates. Urethral slings can be used in patients with intrinsic sphincter deficiency as well as those with hypermobility. It involves the placement of a strip of tissue or artificial substance that supports the urethra and bladder neck like a hammock. It increases outflow resistance and improves urethral closure by supporting the mid urethra. The vast majority of patients can be rendered dry in this way, but the operation does carry the risk of difficulty with passing urine afterwards, sometimes necessitating clean intermittent catheterisation.