

This is a very important topic, because many of the bladder problems experienced by patients with spinal and/or neurological conditions, are associated with a substantially increased risk of urinary infection, especially if the bladder fails to empty and urine pools in the bladder for a prolonged period.

In paralysed persons, (most commonly due to MS or spinal cord injury: SCI), prevention and management of urinary tract infection is a vital part of their overall management. Whilst complete paralysis is rare in arachnoiditis patients, nevertheless, the principles of bladder management remain pertinent.

After SCI, bladder problems inevitably carry significant risk of urinary tract infection, regardless of management techniques. A urinary tract infection can occur at any point in the urinary system: kidney, bladder etc.

A study in the United States by the Agency for Health Care Policy (AHCPR) found that bacteriuria (bacteria in the urine) is a common finding in paralysed patients (some other authors suggest a figure of around 80% of SCI patients) and may be related to factors such as personal hygiene, method of bladder management and degree of function.

Often patients have no symptoms of urine infection. Certain bacteria may be associated with a higher than normal risk of kidney stones. Indwelling catheters were found to be associated with more infections than intermittent, methods not involving catheterisation at all carrying the lowest rate of infections.

Prophylactic antibiotic treatment (preventive rather than curative) seems to reduce the incidence of bacteriuria, but tends to result in an increase in antibiotic-resistant bacteria.

Infection of the testicles (epididymitis) may mimic a urinary infection, plus the scrotum may feel swollen and appear hot and red; patients with incomplete spinal injury may have sensation in this area and will thus feel pain.

### General features of UTI:

- The anal area is the primary source of infection
- The female urethra is shorter than the male therefore infection risk is greater
- Chemicals in prostate fluid may protect men
- If untreated kidney infections may cause high blood pressure or kidney failure

### Factors contributing to infection risk:

- **Irritation from sexual intercourse** (?honeymoon cystitis')
- Use of diaphragm and spermicide for birth control
- History of sexually-transmitted disease
- Previous urinary tract infections
- Irritation from feminine hygiene spray
- Pregnancy
- Swollen prostate gland
- Nerve problems affecting the bladder
- Medical conditions such as diabetes (due to sugar in the urine)

### **SYMPTOMS:** *note: infection may be asymptomatic i.e. no symptoms*

- Urgency
- Frequency
- Pain/burning on passing urine
- Cramps in the bladder
- Discharge from the urethra (men)
- Blood in the urine/cloudy urine
- Fever/chills
- Tenderness over the bladder
- Pain in the loin(s) (at the bottom of the ribcage at the back)

### **OTHER SECONDARY PROBLEMS of neurogenic bladder:**

- Urine reflux: pressure in the bladder and loss of sphincter tone may allow urine to reflux up the ureter towards the kidney, where, over time, the increased pressure may lead to hydronephrosis and possible renal tissue damage. Renal failure used to be the leading cause of

death for patients with a spinal cord injury, but with modern methods of bladder management, complications involving the kidneys tend to be less frequent and less severe. In fact septicaemia (blood stream infection secondary to urinary tract infection) is now more common than kidney failure.

- Renal calculi: kidney stones