Urinary Retention in Patients with Down Syndrome
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The bladder is an organ composed of layers of smooth muscle that sits in the pelvis. The function of the bladder is to collect urine until it has reached its capacity which then signals to the brain that the person needs to urinate. When the time comes to urinate, the bladder walls contract allowing urine to exit the body through the urethra. When a person is unable to void urine from the bladder appropriately, it is known as urinary retention. Acute urinary retention is defined as “the inability to voluntarily pass urine.”¹

People with Down syndrome are at an increased risk of developing urinary retention because of their high incidence of decreased muscle tone. This means that the muscles in the bladder are “floppy”² and less taut at rest which can result in the bladder not being able to properly contract when urinating. This results in difficulty starting the urine stream or in urine remaining in the bladder after voiding. Medications, benign prostatic hyperplasia, and infections are also common culprits of acute urinary retention. People with Down syndrome may also have acquired behavioral patterns of holding their urine for long periods of time which can also lead to a floppy bladder over time. Therefore, it can be difficult to determine what the underlying cause of a floppy bladder is.

There are several risks associated with urinary retention including the development of urinary tract infections, urinary incontinence, abdominal pain/discomfort, and possible kidney damage.

- Urinary tract infections are caused by bacteria entering the bladder through the urethra. Normally, there shouldn’t be bacteria in the urine, but if they are present they are voided from the bladder during urination. When the bladder isn’t emptied for a prolonged period of time, bacteria that have made their way into the bladder from outside the body can grow and create an infection in the urine. This infection can spread towards the kidneys if not treated properly. Urinary tract infections are typically identified through a urine test and treated with antibiotics.
- Urinary incontinence occurs when the bladder becomes over-full and results in unintended leakage of urine from the bladder. Similarly, a full bladder can quickly become too full which creates an urgent need to use the bathroom and the person may not make it in time.
- Abdominal pain/discomfort can occur when the bladder becomes overly full and the person is unable to void in a timely manner.
- Long standing urine retention in the bladder can cause pressure to build up in the urinary system that is transmitted upward towards the kidneys which can damage the kidneys’ anatomic structure and function over time.

The diagnosis of urinary retention can be both invasive and non-invasive. Commonly, an ultrasound (non-invasive) of the bladder is done prior to and after urination to visualize if any urine remains in the bladder. A catheter can also be inserted into the bladder which helps quantify how much urine is retained. A camera (cystoscope) can also be inserted into the bladder to visualize any overt causes of obstruction. A urinalysis and culture can also be done to look for infection.
Treatment of urinary retention can involve behavior modifications, medications, and surgical intervention. For people with bladders that are over-stretched and don’t contract properly, behavior modification can play a big role in preventing overfilling of the bladder. Creating a schedule or picture instruction chart that instructs the person to urinate every 2-3 hours for a pre-determined amount of time can help regulate the bladder function. Some toileting behaviors may be difficult to reverse because of the compulsive behaviors that some individuals with Down syndrome have developed. The underlying cause of the urinary retention should be addressed and new behaviors should be explained and demonstrated in a way that the patient can understand.

Depending on the severity and acuity of the obstruction, a person may have a urinary catheter inserted into the bladder connected to a bag that can be kept in place for a short period of time. The catheter can facilitate voiding by reducing the volume of urine in the bladder and eliminating the problem of the bladder being “over-stretched”. Some people may also benefit from medications that can improve urinary flow. If the cause of obstruction is a large prostate, there are certain medications that can be effective in reducing symptoms. Lastly, surgical intervention by a urologist to remove a part of the prostate or other anatomic obstruction may be a viable option for some people.

References