

## **1-Pager on the Novel Bladder Drainage Device**

In this project we are developing an entirely new bladder draining device, as an alternative to the use of intermittent self-catheterization or indwelling catheter, allowing the neurogenic or obstructive chronic urinary retention patients complete control of their urinary flow. These patients have limited options for draining their bladders.

From each 1 million persons in the world, each year about 40 become spinal cord injured, mainly as a result of falling or traffic accidents. According the National Spinal Cord Injury Statistical Center (Birmingham, Alabama, US) there are approximately 270,000 spine injury patients in the US and that 12,000 persons are added each year. To these we can add people with diseases like multiple sclerosis and Parkinson's which can affect the nerves innervating the bladder and the urinary sphincters and prevent normal emptying of their bladder. Most of these patients use clean intermittent self-catheterization (CIS) or an indwelling catheter for emptying their bladder. Such patients, who are mostly wheel-chair users, have to insert a catheter either by themselves or by their partners or helpers 3-6 times a day/100-180 times per month. It is well known that either indwelling catheters or clean intermittent self catheterizations can injure the urethra or the bladder and cause chronic urinary tract infections. These patients continue using them because of the lack of a better alternative in order to prevent renal function deterioration which was the leading cause of death in spinal cord injury patients. However, urinary tract infections and related septicemia (urosepsis) is still a leading reason for the death of these patients. The main reasons for CIS caused urinary tract infections are poor and traumatic catheterization technique, inadequate frequency or incomplete bladder emptying and inadequate fluid intake.

We came up with an idea of developing a revolutionary bladder drainage method for these patients who need to use CIS or a permanent catheter. Our device will be the biggest disrupting technology since the introduction of the Foley Catheter in the 1950's and CIS since 1970's. It will be inserted as easily as inserting a catheter, activated by the patient to empty the bladder and removed as easily and exchanged after a period of time. This "One insertion" and "One removal" procedure will minimize the possibilities of injuries or infections and will greatly improve the quality of the patient's life.