

Portable Device to Drain and Irrigate the Bladder Safely

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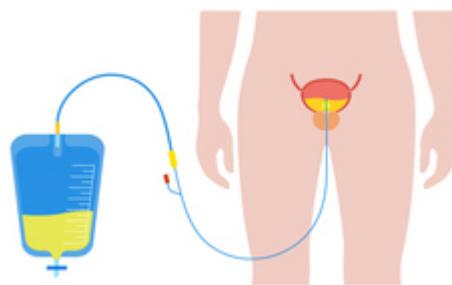
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OVERVIEW

A portable device that drains urine and irrigates neurogenic bladders in men or women

- Safe, easily cleaned, and less error prone than chronic intermittent catheterization
- Useful for patients with neurogenic bladder from any cause

BACKGROUND

Urination occurs when a person's brain sends electrical signals to muscles of the lower urinary tract to induce a neuro-muscular response that results in bladder emptying. Neurogenic bladder (NB) disorder is the chronic disruption of this communication between the nervous system and the urinary tract through any of a number of causes. NB impairs functioning such as loss of the ability to empty the bladder, and patients must therefore utilize clear intermittent catheterization (CIC) to drain their urine. The process for CIC involves draining urine via a catheter placed in the urethra as well as irrigation of the bladder with saline via a syringe. CIC may prove ineffective and time-consuming, leading to low patient compliance and health complications such as urinary tract infections, bladder and kidney stones, and renal failure. A need therefore exists for an accessible, time-efficient, and portable method to sufficiently drain and irrigate patients' bladders that maintains safe pressure, flow, and urine volume levels while reducing infections.

INNOVATION

Researchers have created a portable and accessible device that drains urine and irrigates neurogenic bladders in patients who require chronic intermittent catheterization (CIC). The invention employs mechanically-induced flow through the use of a peristaltic pump that works

via a motorized rotor which applies pressure to the pump's inner tubing. The positive pressure and vacuum produced by the device does not exceed the tolerance of the bladder wall, and both an automatic shutoff and alarm announce unsafe pressure conditions. The off and on switch may be easily managed from a physical standpoint and can be understood by patients with limited or impaired cognitive capabilities. This innovation is called Enginuity, and its advantages include portability, active bladder draining, and the ability to perform irrigation after urine drainage. Furthermore, the device drains the bladder more quickly than CIC, may be easily cleaned, and functions with the anatomy from either gender or even in the setting of a permanent stoma.