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Institutionen för klinisk forskning och utbildning, Södersjukhuset

Bladder distension – aspects of a healthcare related injury

AKADEMISK AVHANDLING

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Abstract

Lower urinary tract symptoms (LUTS) are common health problems. For the individual, LUTS is troublesome and can greatly affect the health-related quality-of-life (HRQOL). One cause of LUTS is urinary retention (inability to void in the presence of a full bladder); a well-known complication following hospital care. If the bladder volume exceeds 500 ml there is a risk of overdistension of the muscle fibres in the bladder wall; bladder distension. This can result in motility problems with post-void residual volumes, urinary tract infections and an inability to void. If the bladder becomes stretched too far, or for a long period, the bladder may be permanently damaged and lose its ability to contract sufficiently for the rest of the person's life. Bladder damage due to overdistension can be classified as a patient injury; harm caused to a patient as a result of their healthcare, and which could have been avoided. The overall aim of this thesis was to improve patient-safety by providing research evidence for bladder monitoring procedures and increase knowledge and awareness of bladder distension as a healthcare-related injury.

Study I was a prospective observational study of peri-operative bladder volumes among orthopaedic or general surgical patients. Bladder volumes were measured on three occasions; after emptying the bladder before being transported to the operating theatre, and then both immediately before and after surgery. Thirty-three of the included 147 patients (22%) developed bladder distension (>500 ml), eight preoperatively and 25 postoperatively. Orthopaedic patients were more likely to develop both preoperative and postoperative bladder distension than surgical patients and had significantly higher post-void residual volumes. Age, gender and time of anaesthesia could not predict bladder distension.

Study II was a randomised controlled trial testing whether a protocol with frequent pre-operative ultrasound monitoring of bladder volumes starting in the ER could reduce the risk of postoperative bladder distension among acute orthopaedic patients. The result showed that patients in the control group (no pre-operative scanning) were more prone to postoperative bladder distension than patients in the intervention group (OR=1.81, 95% confidence interval 1,02-3,23, $p=0.042$). This association remained after adjusting for confounding factors; neither gender, age nor volume of peri-operative fluid affected the outcome.

Studies III and IV focused on the impact of bladder distension from the patient's perspective. Study III was a prospective, longitudinal follow-up survey exploring lower urinary tract symptoms and health-related quality of life up to three months after acute orthopaedic surgery. Patients who have had postoperative bladder distension reported more LUTS and lower HRQOL than patients without bladder distension. Study IV used a qualitative design with narrative interviews of 20 patients who had reported a healthcare-related injury to the Swedish Patient Insurance LÖF, and who had had their injury classified as avoidable bladder damage due to over-distension. The result showed that micturition problems after bladder distension affected the everyday life through several practical and social constraints. Suffering from pain and infections, impaired sex life and strong concerns for the future were other findings. Lack of knowledge, insufficient routines, mistrust and poor communication between the staff and the patient were contributing factors leading to the injury.

Conclusions: Bladder distension is a common healthcare-related injury that can cause suffering and practical, emotional and psychosocial problems with a great impact on the life of the person affected, and anxiety for the future. Frequent bladder monitoring starting in the ER can reduce postoperative bladder distension among acute orthopaedic patients. Safe and effective prevention of bladder distension is based on early recognition.