

Manual Bladder Expression in Paraplegic Dogs

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In the Literature

Carwardine DR, Rose JH, Harcourt-Brown TR, Granger N. Effectiveness of manual bladder expression in paraplegic dogs. *Am J Vet Res.* 2017;78(1):107-112.

FROM THE PAGE ...

This study evaluated the success of manual urinary bladder expression in paraplegic dogs.

Dogs ($n = 36$) with acute spinal cord injury leading to paraplegia were recruited for the study. During 3 days of hospitalization, manual expression was performed every 8 hours by a trained clinician or veterinary nurse. Data were gathered from morning collections only. The volume of urine manually expressed was collected and quantified. Bladder ultrasonography was performed, and standard measurements to estimate residual bladder volume were taken.¹ An intermittent urinary catheter was passed to quantify residual urine volume. Efficacy of manual expression was calculated by determining the percentage of urine expressed manually as compared with total urine volume collected.

Manual bladder expression was unsuccessful at emptying the urinary bladder. A mean of 49% of total urine volume was evacuated by manual expression. Residual volumes (8.41 ± 6.01 mL/kg) were well above residual volumes established for normal, continent dogs ($0.2-0.4$ mL/kg). In 18.28% of 93 attempts, manual expression failed altogether. There was no statistical correlation of patient size with efficacy of manual expression, but this may have been because of the small population of large-breed dogs (3/36). The authors demonstrated that ultrasonography-estimated bladder volumes correlated well with actual bladder volumes, but there was clinically unacceptable variation for predicting actual volume.

Of importance, the authors acknowledged that medications to treat upper motor neuron urinary tract dysfunction were not used, and these may have significant impact on efficacy of manual urinary bladder expression. This should be evaluated in future studies before advocating for prolonged hospitalization or at-home urinary catheter management.

This study underscored the limited efficacy of manual urinary bladder expression in a population of veterinarians and veterinary nurses. At-home manual bladder expression by owners is likely less effective than expression by these trained professionals and may be insufficient to prevent development of consequences of an upper motor neuron spinal cord injury (eg, overflow incontinence, vesicoureteral reflex, detrusor atony).

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Ultrasonography is useful for approximating residual urine volumes. However, the wide confidence interval found in this study indicated that estimates should be interpreted with caution.
- 2** Manual bladder expression is insufficient to empty the bladder in most dogs and may need to be combined with pharmacotherapy.
- 3** It is unknown whether high residual volumes predispose patients to UTIs.

Reference

1. Atalan G, Barr F, Holt PE. Frequency of urination and ultrasonographic estimation of residual urine in normal and dysuric dogs. *Res Vet Sci.* 1999;67(3):295-299.