**Introduction.** Spinal opioids exert different effects on the bladder detrusor muscle (1); consequently in clinical use they are associated with various degrees of urinary disturbances. Intrathecal (I.T.) morphine induces relaxation of the bladder and often urinary retention, while I.T. methadone increases detrusor tone and causes minimal or no urinary problems. Lately fentanyl (F) and buprenorphine (B), two opioids with high lipophytic properties, were introduced for use in spinal analgesia (2). In order to determine the spinal action of F and B on the lower urinary tract, cystometrograms (CMG) and urethral pressure profile (UPP) were studied after their I.T. injection in dogs.

**Methods.** Twenty-four urodynamic studies were carried out in 6 anesthetized mongrel dogs. Each CMG and UPP was recorded twice in separate experiments in the same dog which served as its own control. The measurements were recorded prior to, and 15, 30, 60, 90, and 120 min. post-I.T. F (1.5 μg/kg) or B (2 μg/kg). For the CMG studies, a double lumen catheter was introduced via the urethra, enabling simultaneous filling of the bladder and the continuous recording of the pressure-volume relationship build-up; detrusor compliance was then calculated, as well as the mean percentage changes in pressure and compliance. For the UPP studies, a catheter was introduced into the bladder and while perfused continuously, it was withdrawn at a constant speed, so that the pressure profile along the urethra was recorded and the maximal closure pressure could be compared. Statistical analysis was performed by the Student t-test.

**Results.** A marked depression of the CMG curve followed I.T. F in all dogs, while I.T. B showed an inconsistent and negligible effect on the detrusor (Fig. 1). The decrease in intravesical pressure after I.T. F started after 15 min. and was maximal (48.3 ± 6.2) (mean ± SE) at 30 min. (p < 0.025). An equivalent rise in detrusor compliance was calculated (7% ± 19%) after I.T. F exerted the same action on the UPP, with mean maximal reduction of 38% ± 3 at 30 min. (p < 0.01) (Fig. 2). I.T. B had an opposite effect on the urethral musculature, causing a maximal but non-significant increase in UPP at 90 min. (16k ± 8.3).

**Discussion.** Endogenous opioids are known to influence the lower urinary tract, as shown by enhanced bladder contraction after naloxone administration. The results of this study further emphasize the role of the opioid system on bladder dynamics. F is similar to morphine in its relaxing effect while B has no effect on the bladder. However, on the urethral musculature F and B act in opposite ways. F has a unique marked relaxing action on the urethra compared with B, morphine and methadone. The difference in the urinary activity of various spinal opioids may be explained by the effect of opioids on multiple populations of receptors, each with a specific action on the spinal cord (3). The divergent findings may also be explained by the degree of lipophylicity of each drug, influencing its rate of elimination from spinal tissue, its rostral spread and subsequent effect on higher centers. Mucurition disturbances are related to a high compliant bladder allowing large volumes of fluid to be accommodated without change in pressure. Relaxation of the urethral musculature as obtained after F may prevent overdistention of the bladder and associated urinary retention.

**References.**