

### introduce

Cystometry in rat is very important in checking rats' bladder function[1]. There are two common cystometry ways: One is anesthetic condition cystometry, another is awake condition cystometry[2], so knowing the difference of this two ways is very important to us to analyze the rat's urodynamic results for our animal experiments[3].

### object

To analyze the difference of urodynamic evaluation in rats with slight, deep anesthesia and wakefulness, providing evidence for low urinary tract functional animal study.

### METHODS

Thirteen male Sprague-Dawley rats were involved in this study. They were done operation of cystostomy. In different anesthetic conditions and in awake condition we recorded the urodynamic parameters contained bladder basal pressure, voiding interval, voiding stage maximum detrusor pressure, bladder functional capacity, bladder compliance and voiding stage maximum bladder pressure. The paired T test was used for the statistical analysis with  $P < 0.05$  considered to indicate statistical significance.

### RESULTS

In deep anesthetic condition the rat's bladder couldn't contract, when up to some volume there would be overflow incontinence and the bladder leak point pressure (BLPP) is  $33.101 \pm 7.189 \text{ cmH}_2\text{O}$ . The bladder compliance in deep anesthetic condition is smaller than in slight anesthetic and awake condition ( $0.0174 \pm 0.0126 \text{ ml/cmH}_2\text{O}$  VS  $0.0894 \pm 0.0922 \text{ ml/cmH}_2\text{O}$  VS  $0.104 \pm 0.136 \text{ ml/cmH}_2\text{O}$ ) ( $P < 0.05$ ). In slight anesthetic condition and awake condition the rats could urinate by themselves, but their voiding stage maximum detrusor pressure, voiding stage maximum bladder pressure, voiding interval and functional bladder capacity in slight anesthetic condition all were smaller than in awake condition ( $19.512 \pm 6.002 \text{ cmH}_2\text{O}$  VS  $27.360 \pm 6.284 \text{ cmH}_2\text{O}$ ,  $32.027 \pm 6.309 \text{ cmH}_2\text{O}$  VS  $38.144 \pm 7.974 \text{ cmH}_2\text{O}$ ,  $156.306 \pm 81.327 \text{ s}$  VS  $237.057 \pm 124.388 \text{ s}$ ,  $0.261 \pm 0.136 \text{ ml}$  VS  $0.389 \pm 0.202 \text{ ml}$ ) ( $P < 0.05$ ). The bladder compliance and bladder basal pressure were not statistically significant between slight anesthetic condition and awake condition.

### CONCLUSIONS

Rats have different cystometry results in condition of slight anesthesia, deep anesthesia and wakefulness.



Photo1: Awake cystometry



Photo2: Anesthesia cystometry

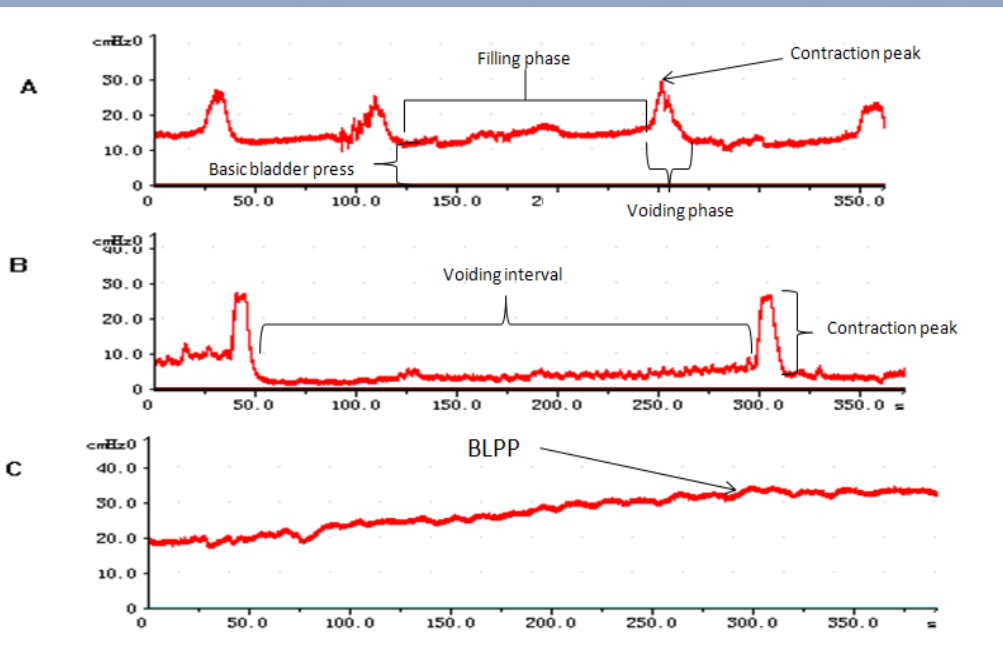


Fig1 : The cystometry result of a rat. A: Slight anesthetic condition cystometry result. B: Deep anesthetic condition cystometry result. The voiding interval and biggest bladder pressure in awake condition is bigger than in anesthetic condition. C: Deep anesthetic condition cystometry result.

### REFERENCES

[1] Wen jianguo, Zhu wen, Yang li, et al. Comparison of ambulatory and conventional urodynamics in females with stress urinary incontinence [J]. Chin J Urol, 2013, 34(2): 116-119.  
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 [3] qian huijun, xiong yunhe, zhang ci, et al. The study of eystometry in anaesthetized and awake rats [J]. J Clin Surg, 2010, 18(2): 129-130.