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 pressure, voiding interval, 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 anesthetized condition the rat’s bladder couldn’t contract, when up to some volume there would be overflow incontinence and the bladder leak point pressure ($P<0.05$) is 33.101±7.189cmH$_2$O.The bladder compliance in deep anesthetic condition is smaller than in slight anesthetic and awake condition (0.017±0.0126ml/cmH$_2$O VS 0.089±0.0922ml/cmH$_2$O). In slight anesthetic 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±6.002cmH$_2$O VS 27.360±6.284cmH$_2$O, 32.027±6.309cmH$_2$O VS 38.144±7.974cmH$_2$O, 156.306±81.327s VS 237.057±124.388s, 0.261±0.136ml VS 0.389±0.202ml). 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.

Returns