

The Measurement of Intra-abdominal Pressure in Awake Rat Cystometry

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The history of animal cystometry revolves around the desire for specification of the lower urinary tract functions as a dynamic reservoir. However, in animal models, the functional significance of intra-abdominal pressure (IAP) in urodynamics have not been well-studied. The measurement of IAP and its interpretation are essential for evaluating the bladder functions. In addition, the IAP is a key physiological parameter in an animal experimental model of voiding dysfunction. In this issue of *International Neurology Journal*, Lee and Yoon [1] provides an overview of the significance of the IAP in an awake-animal cystometry. There are two key roles of the IAP in an awake-animal cystometry model as shown below:

1) The indicator of the directions at which the bladder pressure is exerted

In normal rats, the contraction of detrusor muscle is known as one of the essential processes for voiding functions. But it is not the only factor that induces the voiding functions when the bladder pressure is dispersed to various directions including the urethra. This implies that there is another mechanism involved; the IAP plays a key role in exerting the bladder pressure to the

single direction.

2) The key physiological parameter in animal models

In animal models of voiding dysfunctions, where the intravesical pressure is solely used, inaccurate results would be unavoidable. This is because it is difficult to differentiate between the detrusor overactivity and abdominal straining. But if an animal experiment is performed based on the IAP, this will differentiate between the two variables. Moreover, the IAP reaches the highest and shows a great variability in the voiding phase after it is generated in the prevoiding phase. In the voiding phase, the bladder pressure minus the IAP would be a more accurate, reliable parameter.

In conclusion, the IAP is a key physiological parameter used to adjust the variations of measurements in an awake-rat or mouse cystometry.

REFERENCE

1. Lee T, Yoon SM. The role of intra-abdominal pressure measurement in awake rat cystometry. *Int Neurourol J* 2013;17:55-8.

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