Category :**Gastrointestinal (other than liver)**

A34 - ***The accuracy of new non-invasive intra-abdominal pressure measurement by physical examination and ultrasonography to diagnose intra-abdominal hypertension***

C Achavanuntakul ; P Sirilaksanamanon ; T Thawitsri ; P Bootjeamjai
King Chulalongkorn Memorial Hospital, Department of Anesthesiology, Bangkok, Thailand

Introduction:

Intra-abdominal hypertension (IAH) is a serious condition that can lead to life-threatening complications if left untreated. Early diagnosis and treatment are the mainstay to decrease morbidity and mortality. The gold standard for non-invasive intra-abdominal pressure monitoring is intravesical pressure measurement, which has several limitations. For this reason, this study is conducted to develop a new non-invasive method to diagnose IAH, especially for unreliable or unable to measure intravesical pressure.

Methods:

This cross-sectional diagnostic study was conducted in the surgical intensive care unit. The gold standard intravesical pressure measurement was measured, and intraabdominal pressure (IAP) was recorded. Simultaneously, a new non-invasive method by physical examination combined with ultrasound was assessed in all patients. The ratio of maximal anteroposterior to transverse abdominal diameter (AP-T) was also obtained. The relationship between IAP and the ratio of maximal AP-T was evaluated by Pearson's correlation coefficient. The ability of a new non-invasive method to detect high IAP was assessed by receiver operating characteristic curve (ROC) analysis with the area under the ROC curve (AUROC) and by computing sensitivity and specificity.

Results:

Of the 67 patients, 18 patients were diagnosed with IAH defined by IAP $\geq$ 12 mmH_2O, and 49 patients had normal abdominal pressure. The relationship between the ratio of maximal AP-T was correlated with IAP (R^2 0.704, p-value < 0.001). The ratio of maximal AP-T diameter exhibited good discrimination for abdominal hypertension with AUROC 0.84, 95% CI 0.73-0.94. A ratio of maximal AP-T diameter $\geq$ 0.56 could detect high IAP with a sensitivity of 83.33 %, a specificity of 83.67 %, a positive predictive value of 65.2 %, and a negative predictive value of 93.2%.

Conclusion:

In this study, a new non-invasive method may be considered an alternative to intravesical pressure measurement for detecting IAH.