

# Configuring a Better Estimation of Obese Children's Kidney Size

Fahimeh Soheilipour, MD, Nahid Rahimzade, MD, Fatemeh Jesmi, MD, Mohadeseh Pishgahroudsari, BS, Sarah Kaviani, MD, Mahnaz Sadeghian, MD, Fariba Almassinokiani, MD

Minimally Invasive Surgery Research Center, Iran University of Medical Sciences, Tehran, Iran

**Background:** Obesity ignites numerous health and psychosocial problems and is associated with various comorbidities. Body mass index (BMI) is also independently associated with improved risk for numerous kidney disorders. As renal length is considered a vital parameter in the clinical assessment of renal patients, normal renal length has to be defined in accordance to BMI. The aim of this study is to define normal kidney length in obese children, comparing ultrasound measurements of the kidney length in obese and non-obese children, in order to reduce unnecessary evaluations for nephromegaly.

**Material/Methods:** 50 obese children and 50 non-obese children, aged 1–19 years old, were selected from patients of pediatric clinic in two hospitals (Rasoul-e-Akram and Shahid Fahmideh) between June 2010 and 2012. After the nephrologist's and endocrinologist's approval, abdomino-pelvic ultrasonography was done for both groups, during which the largest longitudinal dimension was measured in the deep inspiration position.

**Result:** It was revealed that both left and right kidney in obese group were significantly larger than control group (p-value=0.044 and p-value=0.040, respectively). Obesity status, height and age were proven to be significant and independent predictors of both kidney lengths and left kidney length was significantly larger than right kidney length, separately in both obese and control groups ( $P < 0.001$ ).

**Conclusion:** A specific standard cut-point limit or normogram has to be formulated solely for obese children, in order to facilitate the diagnosis of kidney diseases, including organomegaly, in obese children.

