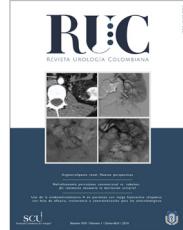REVISTA
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ORIGINAL ARTICLE

Nephrometry R.E.N.A.L. score interobserver

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Abstract

Introduction: Kutikov and Uzzo described the R.E.N.A.L. nephrometry score in 2009. It allows the anatomic evaluation of renal tumors in order to compare the technical difficulty during partial nephrectomy according to several characteristics: size, depth of the mass in the renal parenchyma, proximity to the renal collecting system, localization (anterior or posterior and polar). The score is also useful, among others, to predict technical difficulty, define the risk of post-operative complications, define the type of ischemia and standardize dada compilation.

Materials and methods: We retrospectively reviewed 20 triphasic computed tomography studies from 20 patients that were taken to partial nephrectomy in the Pablo Tobon Uribe Hospital in Medellin between December of 2009 and March of 2014. One urologic oncologist, one radiologist and one urology resident (first year resident) used the nephrometry score to classify the patients. The inter-observer concordance was defined for each of the components by kappa coefficient.

Results: Concordance for each score component was analyzed separately. The concordance for tumor diameter component was accurate, 0.75 (confidence interval [CI] 95% 0.34–0.98); for the exofitic/endofitic component was adequate 0.56 (CI 95% 0.30–0.81); for proximity to the collecting system was discordant 0.24 (CI 95% −0.08 to 0.56); for anterior/posterior was concordant 0.65 (CI 95% 0.40–0.89) and for location in relation to the interpolar lines was discordant 0.12 (CI 95% −0.14 to 0.38).

Conclusions: We found in this cohort that the R.E.N.A.L. nephrometry score has a good inter-observer concordance for tumor diameter and anterior/posterior components while it was discordant and acceptable for the proximity to the collecting system and relation to the inter-polar lines respectively. The R.E.N.A.L. nephrometry score is a useful tool to establish the best surgical approach, technical difficulty and type of ischemia during partial nephrectomy.

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Sistema de puntaje para nefrometría R.E.N.A.L. score interobservador

Resumen

Introducción: La escala R.E.N.A.L., que permite evaluar la anatomía de tumores renales, fue propuesta por Kutikov y Uzzo en 2009. Se compone de: R (diámetro tumoral), E (exofítico/endofítico), N (proximidad al sistema colector), A (anterior/posterior) y L (localización en relación con las líneas interpolares). La utilización de sistemas de nefrometría ha servido entre otras cosas para: predicción de la dificultad técnica, riesgo de complicaciones postoperatorias, definir el tiempo de isquemia y estandarizar la forma de reportar los datos.

Materiales y métodos: Retrospectivamente se analizaron 20 tomografías de 20 pacientes sometidos a nefrectomía parcial en el Hospital Pablo Tobón Uribe de la ciudad de Medellín, intervenidos entre diciembre de 2009 y marzo de 2014. Un urólogo oncólogo, una radióloga y un residente de urología de primer año clasificaron las masas renales usando el sistema de nefrometría R.E.N.A.L. score. La concordancia interobservador se determinó por separado para cada uno de los componentes del score mediante el estadístico kappa.

Resultados: Para el diámetro tumoral, la concordancia interobservador fue buena: 0,75 (intervalo de confianza [IC] 95%: 0,34-0,98); para el componente exofítico/endofítico fue aceptable: 0,56 (IC 95%: 0,30-0,81); para el componente proximidad al sistema colector fue reducida: 0,24 (IC 95%: −0,08-0,56); para el componente anterior/posterior fue buena: 0,65 (IC 95%: 0,40-0,89), y para el componente de localización con las líneas interpolares fue pobre: 0,12 (IC 95%: 0,14-0,38).

Conclusiones: El sistema de puntaje de nefrometría R.E.N.A.L. tiene una buena confiabilidad interobservador para los componentes diámetro del tumor y localización (anterior/posterior), pero una pobre/aceptable confiabilidad interobservador para los componentes proximidad al sistema colector y la localización en relación con las líneas interpolares. Es una herramienta útil para masas renales, define la dificultad técnica y determina el mejor abordaje y el tipo de isquemia en la cirugía.

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Introduction

Nephron sparing surgery is an alternative treatment in patients with small renal masses. Nephrometry systems help to objectively determine the complexity of renal masses in order to define the approach, to predict the time of ischemia and the prognosis of nephron sparing nephrectomy, among other things. The best known systems are: the C-index, PADUA (preoperative aspects and dimensions used for an anatomical) classification, and R.E.N.A.L. nephrometry scale.

The rising incidence of renal masses is partly explained by the increased use of diagnostic imaging to study different symptoms. We should not ignore, however, that the number of renal tumors is also increasing worldwide for reasons still unknown.

Assessing the anatomical characteristics of renal tumors is critical in the preoperative planning of nephron sparing nephrectomy. Tumor characteristics determining the effectiveness and technical difficulty of partial nephrectomy include: size, multifocality, depth, nearness to the collecting system, and renal vascular anatomy. In addition, tumor location (anterior, posterior, polar location) is also important. Some of the previously mentioned characteristics form part of the R.E.N.A.L. nephrometry score, and they are assessed prior to surgery, allowing to determine the complexity of partial nephrectomy by imaging studies, such as triphasic abdominal computed tomography or magnetic resonance imaging of abdomen and pelvis with coronal reconstruction.[1]

The scoring system for the R.E.N.A.L. nephrometry score was recently proposed by Kutikov and Uzzo,[2] with the objective of characterizing renal tumor masses according to the aforementioned characteristics. The study aimed to assess interobserver variability for each of the 5 components of the nephrometry table and for the total score summing up each of the components. It is the most commonly used scale in the US.

In the urologic literature this tool has shown consistent correlation with surgical prognosis and complications. The R.E.N.A.L. nephrometry scale aims to provide quantitative information on renal masses. The total score allows to determine the complexity of partial nephrectomy. Lesions in which the total score of the components is 4–6 are considered renal masses of low complexity; lesions totaling 7–9 are renal masses of moderate complexity; and those totaling 10–12 are considered highly complex lesions. Risk stratification is classified into 3 zones (zones 1, 2, and 3), each corresponding to a score value of 1, 2, and 3, respectively. Tumors are stratified into three levels of complexity. Low-risk renal tumors total 4–6; those of intermediate risk, 7–9; and high-risk tumors total 10–12.[3]