

Independent validation of the 2010 TNM staging system for renal cell carcinoma: Does it improve predictive accuracy in cancer-specific mortality compared to 2002 TNM?

Eur Urol Suppl 2013;12:e340

Roscigno M.¹, Shariat S.², May M.³, Zigeuner R.⁴, Chromecki T.⁴, Stief C.⁵, Schips L.⁶, De Cobelli O.⁷, Rocco B.⁸, De Nunzio C.⁹, Feciche B.¹⁰, Truss M.¹¹, Pahernik S.¹², Zastrow S.¹³, Novara G.¹⁴, Minervini A.¹⁵, Antonelli A.¹⁶, Mirone V.¹⁷, Simonato A.¹⁸, Bertini R.¹⁹, Ficarra V.²⁰, Brookman-May S.²¹

¹Ospedali Riuniti Di Bergamo, Dept. of Urology, Bergamo, Italy, ²Weill Cornell Medical College, Dept. of Urology, New York, United States of America, ³St. Elisabeth Hospital Straubing, Dept. of Urology, Straubing, Germany, ⁴Medical University of Graz, Dept. of Urology, Graz, Austria, ⁵Ludwig-Maximilians-University of Munich, Dept. of Urology, Munich, Germany, ⁶S. Pio Da Pietralcina" Hospital, Dept. of Urology, Vasto, Italy, ⁷European Institute of Oncology, Dept. of Urology, Milan, Italy, ⁸University Milano, IRCCS Cà Granda Ospedale Maggiore Policlinico, Dept. of Urology, Milan, Italy, ⁹La Sapienza University; S. Andrea Hospital, Dept. of Urology, Rome, Italy, ¹⁰Clinical Municipal Hospital, Dept. of Urology, Cluj-Napoca, Romania, ¹¹Klinikum Dortmund, Dept. of Urology, Dortmund, Germany, ¹²University of Heidelberg, Dept. of Urology, Heidelberg, Germany, ¹³University of Dresden, Carl Gustav Carus Hospital, Dept. of Urology, Dresden, Germany, ¹⁴University of Padua, Dept. of Urology, Padua, Italy, ¹⁵University of Florence, Dept. of Urology, Florence, Italy, ¹⁶University of Brescia, Dept. of Urology, Brescia, Italy, ¹⁷University of Naples, Dept. of Urology, Naples, Italy, ¹⁸University of Genova, Dept. of Urology, Genova, Italy, ¹⁹Vita-Salute University San Raffaele Hospital, Dept. of Urology, Milan, Italy, ²⁰OLV Robotic Surgery Institute, Dept. of Urology, Aalst, Belgium, ²¹University Regensburg; Caritas St. Josef Medical Center, Dept. of Urology, Regensburg, Germany

INTRODUCTION & OBJECTIVES: The 2010 TNM staging system provided several changes in pT classification: pT2 stage is splitted in pT2a (≤ 10 cm) and pT2b (>10 cm); patients with tumor thrombus invading the renal vein are classified as pT3a; infiltration of the wall of the vena cava as pT3c; direct invasion of the adrenal gland is inserted in pT4 stage. Moreover all nodal involvement is classified as pN1. We aimed to analyze whether the new TNM staging system is more accurate than the 2002 TNM classification in predicting the risk of cancer-specific mortality (CSM).

MATERIAL & METHODS: We retrospectively analyzed data of 14040 consecutive patients who underwent radical nephrectomy or nephron-sparing surgery for RCC, between 1987 and 2008. The Kaplan-Meier method and univariable and multivariable Cox regression analyses were used to determine the effect of the 2002 TNM and of the new TNM staging system on CSM. Finally, we compared the accuracy of the 2002 TNM and of the 2010 TNM staging system calculation the area under the ROC curve. Mantel-Haentzel test evaluated the differences in predictive accuracy between the two different classification.

RESULTS: Median follow-up was 63 months (2-290). According to 2002 TNM staging system, no difference was found in survival between pT3c and pT4 patients at univariable analyses. According to the 2010 TNM staging system, pT3c and pT4 patients showed similar survival. The predictive accuracy of pT 2002 and pT2010 was 73.7 and 73.9%,

respectively, at univariable analysis. At multivariable Cox regression analysis, both 2002 pT and the new pT classification resulted as independent predictors of the risk of CSM, after adjusting for distant metastases and nodal involvement. Finally, the model including 2002 TNM and the new TNM staging system showed similar accuracy in predicting CSM (AUC= 80.5 vs 80.6%; p=0.89)

CONCLUSIONS: in the TNM 2010, the reclassification in pT2a and pT2b disease seems to really distinguish two groups of patients with different prognosis, as well as in case of pT3a, pT3b and pT3c subgroups of patients. However, no difference was found in CSM between pT3c and pT4 patients according to both 2002 and 2010 TNM classification. The new TNM staging system is an accurate tool to predict CSM, but does not improve accuracy in predicting patient outcomes with respect to the 2002 TNM staging system. Further improvement in patient risk stratification will be required.