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Role of P53, KI67 and Cyclin a Immunohistochemical Assay in Predicting Wilms' Tumor Mortality

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Abstract : Introduction and Objective: Tumour staging and grading do not usually reflect the future behavior of Wilms' tumor (WT) regarding mortality. Therefore, in this study, P53, Ki67 and cyclin A immunohistochemistry were used in a trial to predict WT cancer-specific survival (CSS). Methods: In this nonconcurrent cohort study, patients' archived data, including age at presentation, gender, history, clinical examination and radiological investigations, were retrieved then the patients were reviewed at the outpatient clinic of a tertiary care center by history-taking, clinical examination and radiological investigations to detect the oncological outcome. Cases that received preoperative chemotherapy or died due to causes other than WT were excluded. Formalin-fixed, paraffin-embedded specimens obtained from the previously preserved blocks at the pathology laboratory were taken on positively charged slides for IHC with p53, Ki67 and cyclin A. All specimens were examined by an experienced histopathologist devoted to the urological practice and blinded to the patient's clinical findings. P53 and cyclin A staining were scored as 0 (no nuclear staining),1 (<10% nuclear staining), 2 (10-50% nuclear staining) and 3 (>50% nuclear staining). Ki67 proliferation index (PI) was graded as low, borderline and high. Results: Of the 75 cases, 40 (53.3%) were males and 35 (46.7%) were females, and the median age was 36 months (2-216). With a mean follow-up of 78.6±31 months, cancer-specific mortality (CSM) occurred in 15 (20%) and 11 (14.7%) patients, respectively. Kaplan-Meier curve was used for survival analysis, and groups were compared using the Log-rank test. Multivariate logistic regression and Cox regression were not used because only one variable (cyclin A) had shown statistical significance (P=.02), whereas the other significant factor (residual tumor) had few cases. Conclusions: Cyclin A IHC should be considered as a marker for the prediction of WT CSS. Prospective studies with a larger sample size are needed.

Keywords : wilms' tumour, nephroblastoma, urology, survival
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