**Assessment of (EZH2) expression, digital image analysis of CD8+ lymphocytes, and Automated nuclear morphometry in renal cell carcinoma**

Abstract: The enhancer of zeste homolog-2 is overexpressed in many human cancers. High CD8+ T cell density was associated with favorable prognosis in various tumors, but this isn’t true for all cancers. Nuclear grading of RCC is an important prognostic factor but it’s subjective. Automated nuclear morphometry is more accurate. Aim: Evaluation of EZH2 expression, CD8+ density, and nuclear morphometry in RCC. Methods: In this retrospective study, IHC staining of EZH2 and CD8+ was done and assessed for each RCC case. CD8+ density was calculated. Quantitative nuclear morphometry was done by automated image analysis. Results: EZH2 expression showed a highly significant relation with histologic grade(P=0.002), tumor extent(P=0.012), and AJCC stage(P=0.004)& showed a significant relation with nodal metastasis (P=0.033), and distant metastasis(P=0.044). A highly significant relation between CD8+ density and histologic types(P=0.0001), histologic grade(P<0.001), tumor extent(P=0.0002), nodal metastasis(P=0.003), and AJCC stage(P=0.001). Both EZH2 and CD8+ density showed a highly significant relation with OS(P=0.008 &0.001 respectively) and DFS(P<0.001 &0.001 respectively). MNA, MNP, MN long and short axis had significant relation with histologic grade(P<0.001, for each), tumor extent(P=0.001, 0.001, 0.001 & 0.002 respectively), nodal metastasis (P=0.044, 0.027, 0.032 & 0.038 respectively), distant metastasis (P=0.049, 0.047, 0.036, and 0.037 respectively), and AJCC stage group (P= .011, 0.013, 0.022, and 0.009 respectively), EZH2 expression(P=0.011, 0.013, 0.006 & 0.027 respectively), Cd8+ density(P <0.001, for each), OS(P<0.001, for each) and DFS (P=0.003, 0.006, 0.003 & 0.002 respectively). Conclusion: EZH2, CD8+ density and nuclear morphometry could be reliable prognostic factors in RCC.