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**Mitochondrial DNA copy number variation as a potential predictor of renal cell carcinoma****Eman Tayae Elsayed, Mohamed Mohie Hashad and Iman Ezzat Elgohary**  
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**Background & Aim:** Peripheral blood mitochondrial DNA (mtDNA) copy number alteration has been suggested as a risk factor for several types of cancer. The aim of the present study was to assess the role of peripheral blood mtDNA copy number variation as a non-invasive biomarker in prediction and early detection of renal cell carcinoma in a cohort of Egyptian patients.

**Methods:** Quantitative real-time polymerase chain reaction (qPCR) was used to measure peripheral blood mtDNA copy number in 57 patients with newly diagnosed, early-stage localized renal cell carcinoma and 60 age and sex-matched healthy individuals as a control group.

**Results:** Median mtDNA copy number was significantly higher in renal cell carcinoma cases than in controls (166 versus 91,  $P < 0.001$ ). Increased mtDNA copy number was associated with 18-fold increased risk of RCC (95% confidence interval: 5.065-63.9). On using receiver operating characteristic curve analysis, it was found that mtDNA could distinguish between RCC patients and healthy controls with 86% sensitivity, 80% specificity, 80.3% positive predictive value and 85.7% negative predictive value at cutoff value of 108.5.

**Conclusion:** This study suggests that increased peripheral blood mtDNA copy number could be used as a potential independent predictor of RCC risk. In addition, it may serve as a promising non-invasive biomarker for early detection of RCC.

**Biography**

Eman Tayae Elsayed is currently working as a Clinical & Research Fellow at the Department of Surgery, University College of Medicine, Egypt. His/Her academic interests include hepatobiliary and pancreatic surgery, surgical oncology for pancreatic cancer, molecular imaging by two-photon microscopy, pancreatic cancer microenvironment and cancer metabolism.

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