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Should BRAF V600 Emutation and NIS expression affect the response to radioactive iodine therapy in papillary thyroid carcinoma patients?

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This study aims to (1) evaluate the immunohistochemical expression of mutant form of BRAF (BRAFV600E) and Na+/I- symporter (NIS) in 81 formalin-fixed paraffin-embedded blocks of papillary thyroid carcinoma (PTC) (2) correlate their expression with clinicopathological features, American Thyroid Association (ATA) risk stratification, prognosis of PTC patients and cumulative I131 dose (RAIT). Seventy-nine percent of specimens showed positive cytoplasmic expression of BRAFV600E .Statistically significant relation was detected between positive BRAFV600E expression and larger tumor size (P <0.001), presence of lymphovascular invasion (P= 0.002), lymph node metastasis (P= 0.01), classic type of PTC (p<0.001), increased cumulative dose of RAIT (p=0.036) and high risk and intermediate risk patients (p=0.001). Sixty specimens showed positive aberrant expression of NIS (27cytoplasmic and 33 nuclear staining patterns) while only 9 specimens showed active membranous expression. NIS expression did not show statistically significant difference with any of clinicopathological variables. However, the cumulative dose of 131I treatment decreased with increased NIS expression. Statistically significant positive correlation was detected between BRAFV600E positive expression and increased NIS expression (p=0.018).Furthermore, patients with high risk category and those with positiveBRAFV600E expression experienced shorter disease-free survival with (P=0.002 & P=0.075) respectively. In conclusion, BRAFV600E mutation was associated with high risk characteristics of PTC patients. Not only membranous but also aberrant NIS expression is associated with decreased cumulative dose of RAIT. Our cases with mutant BRAF were associated with increased NIS expression but showed increased cumulative dose of RAIT. This implies that BRAFV600E mutation may affect response RAIT by mechanisms other than NIS expression.

Biography

Heba E M El-Deek has completed her PhD at a year 2014 from Faculty of Medicine, Assiut University, Assiut, Egypt. She has good experience in diagnosis of surgical pathology cases, immunohistochemistry and tissue microarray construction. She has many international publications.

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