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Abstract

Somatostatin Receptor 2 (SSTR2) Expression in Neuroendocrine Tumors of the Gastro-intestinal Tract: Prognostic Significance and Potential Therapeutic Strategies

Sorina Tăban[1,2], Oana Popa[2,3], Marioara Cornianu[1,2], Anca Mureșan[1,2], Dorela-Codruța Lăzureanu[1,2], Remus Cornea[1,2], Adrian Văduva[1,2], Octavia Vița[1], Aura Jurescu[1], Robert Barna[1], Bianca Natarâș[1], Ioana Hurmuz[1], Alis Dema[1,2]

[1] Department of Microscopic Morphology - Anatomic Pathology, "Victor Babes" University of Medicine and Pharmacy, Timisoara, Romania

[2] Department of Pathology, "Pius Brînzeu" County Clinical Emergency Hospital, Timisoara, Romania

[3] Endocrinology Clinic, "Pius Brînzeu" County Clinical Emergency Hospital, Timisoara, Romania

* Correspondence: taban.sorina@umft.ro

Abstract: ***Objective of the study:*** Despite the similar morphological and immunohistochemical features, neuroendocrine neoplasms (NENs) present specific characteristics based on their tumor origin. Tumors of the digestive tract constitute the majority of neuroendocrine tumors (NETs, 55%), followed by bronchopulmonary NETs (25%). ***Material and methods:*** In our study, we analyzed all gastrointestinal NENs diagnosed in the Pathology Department of the Clinical County Hospital Timisoara from January 2008 to December 2017, including primary tumors and hepatic metastases. The study group consisted of 67 cases: 34 men (50.7%) and 33 women (49.3%) with an average age of 58.3 years. The tumors were reanalyzed and reclassified according to the 2019 WHO recommendations. For the IHC study, we used monoclonal antibodies CgA, Syn, Ki-67, and antiSSTR2. ***Results:*** Among the primary tumors, G1 NETs expressed SSTR2 in 100%, G2 NETs in 61,1%, G3 NETs in 14.3%, and NECs in 33.3% (significant correlation between tumor differentiation grade and SSTR2 expression, P = 0.0004). In secondary hepatic tumors, we noted 57.9% positive SSTR2 immunoreactions. All early-stage tumors (stages I and II) were positive for SSTR2, a much higher percentage than advanced-stage tumors (III and IV, 56%). SSTR2 expression was significantly correlated with perineural invasion (P = 0.04). Tumors without lympho-vascular emboli were more frequently SSTR2 positive (100%) than tumors with lympho-vascular invasion (56,5%). ***Conclusions:*** Due to the correlations between SSTR2 and both tumor differentiation grade and clinical stage, SSTR2 expression can be considered a prognostic factor, providing information regarding treatment, progression, and patient survival. Immunohistochemistry is a reliable, relatively inexpensive method, especially useful for identifying the SSTR2 profile in gastrointestinal NETs.

Keywords: neuroendocrine tumors; somatostatin receptors; prognostic factor.