

Expression Of Ras And Rab Interactor 1 (Rin1), Egfr And Notch1 In Head And Neck Tumours At Selected Hospitals In Ghana

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Background : Head and neck tumours (HNT) are of paranasal sinuses origin (the salivary glands and the upper aero-digestive tract). It constitutes the sixth most common tumours. Studies have shown that, factors such as tobacco and alcohol intake and viral infections may increase the relative risk to the tumour. RIN1 is a Ras effector protein that regulates epithelial cell properties and has been implicated in a number of tumours. Epidermal growth factor receptor (EGFR) can stimulate cell proliferation, cell differentiation, cell growth, migration, and inhibit apoptosis when it is highly expressed. Notch1 pathways are frequently altered in many tumours, however, the clinical significance of NOTCH1 dysregulation in head and neck tumours is poorly understood.

Method: The aim of this study was to investigate the expression of Ras and Rab interactor 1(RIN1), EGFR and NOTCH1 in head and neck tumour and also to elucidate the various anatomical pattern of the head and neck tumours in selected hospitals in Ghana. RIN1, EGFR and NOTCH1 expression were analyzed using quantitative real-time PCR (qRT-PCR) and immunohistochemical staining on tissue samples from a consecutive series of 150 head and neck tumour patients and 150 normal head and neck tissues who underwent tumor resections over a four-year period.

Results: The oral cavity was the most frequent anatomical site for the head and neck tumours comprising of 34.0%, followed by tumour of the respiratory (25.2%), mandible (24%) with the least anatomical site of the tumour been salivary gland (0.76%) and the eye (0.76%). qRT-PCR results showed that RIN1 expression was low in study cases compared to the normal head and neck tissues. High and low Rin 1 was compared, there was low level for the expression of RIN1 within ages between $\leq 40, >40$ in the head and neck malignant tumours with p- value 0.02. There was a significant difference between the histological differentiation of the malignant tumour with p values of 0.001, when poor and well moderate was compared. qRT-PCR results showed that the EGFR expression was high in tumor tissue samples than in the normal head and neck tissues. There was a significant difference between the histological differentiation of the malignant tumour with p values of 0.001, when poor and well moderate was compared. There was a significant difference (p-value 0.012) between the I-II and III-IV tumour stages when the high level and low expression of EGFR were compared. The staining patterns of Notch1 were seen in the nucleus and cytoplasm. The percentage of low expression of Notch1 were 71.4% in the malignant tissue (n=98) and 76.9% (n=52) in the benign tissue. The anatomical site with high of low expression of the NOTCH1 was found in oral cavity (37.1%) followed by respiratory (27.1%) followed by mandible (14.3%).

Biography

Dr. Precious Barnes is a physician in the Department of Physician Assistant School of Allied Health Sciences and he is a assistant physician in the College of Health and Allied Sciences in the University of Cape Coast in Ghana. He has published many articles in the reputed journals.

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Abstract received : February 24, 2023 | Abstract accepted : February 27, 2023 | Abstract published : 28-08-2023