

# 11<sup>th</sup> Global Dermatologists Congress

November 14-15, 2016 Dubai, UAE

## The prognostic value of HER2 oncogene expression in human cutaneous squamous cell carcinoma

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Cutaneous squamous cell carcinoma (SCC) accounts for 20% of all dermatologic malignancies and has been defined as a proliferation of keratinocytes with potential for local and metastatic disease. HER2, a member of the Erb family of transmembrane receptor tyrosine kinases (RTK), is responsible for communicating extracellular signals to the nucleus and is implicated in tumorigenesis in several malignancies with potentially poor outcome. To date, the expression of HER2 has not been evaluated in primary cutaneous squamous cell carcinoma (SCC). This study was carried out with cooperation of Pathology Department, King Fahd Specialist Hospital, Buraidah and other hospitals in Qassim region. The study was conducted on about 40 skin specimens from patients with non melanoma skin cancer (squamous cell carcinoma) diagnosed and confirmed by biopsy. Immunohistochemical analysis for HER2 was carried out on formalin, fixed-paraffin embedded sections of skin tissues using avidin biotin peroxidase method. The age and sex of the patients, the main complaints, the clinical presentations, the tumor size and sites were recorded and analyzed. In this study, nearly all normal stratified squamous epithelium of the skin were negative, whereas cases of SCC showed positivity to HER2. HER2 expression was observed in approximately 70% of SCC cases. There was statistically significant correlation between HER2 expression histologic grade, lymph node metastasis and distant metastasis ( $P=0.006, 0.043, 0.009$ , respectively). HER2 overexpression was initially seen to be present in of breast cancer patients and more recently in a similar percentage of stomach and esophagogastric junction tumors. Previous study showed HER2 to be expressed only in 25% of metastatic SCC of the skin. To date, however, HER2 has not been evaluated in primary cutaneous SCC. There are significant clinical implications associated with the expression of this receptor; each is an independent prognostic indicator of poor outcome. In this study, 40 cases of primary cutaneous SCC were evaluated for the expression of HER2. IHC demonstrated (28/40) 70% immunoreactivity for HER2. Though a limited series, our results suggest that HER2 are overexpressed in SCC. Our findings indicate that metastatic potential of cutaneous SCC are cognate with the association of increased HER2 expression inferring a worse prognosis and greater metastatic potential. Further studies are needed to examine the expression of HER2 in the different subtypes of primary and metastatic SCC. In conclusion, we found that HER2 expression in cutaneous SCC correlated strongly with a well established negative prognostic marker. HER2 expression correlated with high tumor grade, lymph node, and distant metastasis, which indicates that HER2 can be used as an independent prognostic marker indicative of poor prognosis and a probable target in the development of novel therapies. Thus, we recommend that HER2 be routinely added as a new negative prognostic marker in all cutaneous squamous cell carcinoma patients.

### Biography

Lina Alyousif is a Intern doctor , MBBS at Qassim University , KSA and head of medical student's club. She is Interested in Dermatopathology and Dermatology researches.

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