



## A Prospective Study to Assess the Role of Delta Np63 as a Molecular Marker in Blood for Early Diagnosis of Esophageal Squamous Cell Cancer at a Tertiary Care Centre in North India

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### INTRODUCTION

Esophageal carcinoma is one of the deadliest cancers with highly aggressive potency, ranking as the sixth most common cancer among males and ninth most common cancer among females globally. Due to metastasis and invasion of surrounding tissues in early stage, the 5-year overall survival rate (14%) of esophageal cancer remains poor, even in comparison with the dismal survival rates (4%) from the 1970s<sup>1</sup>. Detection of point mutations, microsatellite alterations, DNA hypermethylations and losses of heterozygosity in circulating cell free DNA have been characterized in esophagus cancer<sup>2</sup>. Application of circulating cell free DNA as a biomarker, provide the best opportunity for constructing non-invasive tests for early detection, prognosis and management of cancer patients<sup>3</sup>.

The p63 gene is critical for the development of stratified squamous epithelium, and  $\Delta$ Np63  $\alpha$  is the predominant isotype within this tissue studies of squamous cell cancers demonstrate amplification of the p63 gene locus and overexpression of p63, particularly  $\Delta$  Np63, at the protein and mRNA levels<sup>4</sup>. In this study, blood samples obtained from esophageal squamous cell carcinoma patients (both primary cases (resected and non resected) and those with recurrence) were assayed for expression of delta NP63 at a tertiary care centre in North India.

### AIMS AND OBJECTIVES

- To identify surgically resectable tumors earlier and improve the prognosis of esophageal squamous cell carcinoma patients, by examining  $\Delta$ Np63 expression

in blood samples obtained from esophageal cancer patients.

- To establish the significance of  $\Delta$ Np63 expression on sex, age and stage of disease basis.

## MATERIAL AND METHODS

The study was conducted in the department of surgery KGMU lucknow for a period of 2 years from december 2014 to october 2016. 30 Patients diagnosed to have esophageal cancer were included in the study after taking prior informed consent and ethical clearance from the University while 30 patients formed the control group. 2 ml of Blood sample was obtained from every patient with primary squamous cell carcinoma (resectable and non resectable cases ) in citrate vial and immediately stored at  $-80^{\circ}\text{C}$  in liquid nitrogen. Expression analysis of Delta NP63 gene was carried out using quantitative real-time PCR in Esophageal tumor and controls samples. Comparison of relative expression level of Delta NP63 in individual sample was analyzed through REST software

## OBSERVATIONS AND RESULTS

Out of 30 patients included 57% were above 50 years of age and 43% were below 50.

Of the patients included in this study 70% were males and 30% females.

43% patients were in stage 3, 30% were in stage 2, 17% in stage 4 and 10% in Stage 1.

43% of patients in this study had upregulated expression of Delta Np63 while expression was down regulated in 57%. There was no significant difference in the incidence of Squamous Cell Ca Esophagus in the study group below or above 50 years of age. There was no significant difference in the expression of Delta Np63 among males or females. There was no significant difference in expression of Delta Np63 among patients with different stages of ca esophagus. The P value of standard deviation among patients with upregulated expression of Delta Np63 and with

down regulated expression of Delta Np63 was insignificant.

## DISCUSSION

In this present study the expression of Delta Np63 in patients with squamous cell carcinoma of esophagus and its correlation with age sex and stage of disease was studied. It was found that Delta Np63 expression was up regulated in 43% of cases while being down regulated in rest as compared to control group. In this study tissue expression was excluded and expression was studied only in blood from patients of squamous cell esophageal cancers and compared to that in normal population. We had up regulated expression in 43% with P value of 0.178 on comparison with normal population which is insignificant.

In this study squamous cell carcinoma was more prevalent in males compared to females, but the difference of Delta Np63 expression was insignificant.

Also more cases (57%) were of greater than 50 years age group although the difference of Delta Np63 expression was insignificant.

Most of the cases included were in stage 3 of the disease (43%). expression of delta Np63 in various stages was found to have insignificant difference.

Our study had no significant difference in expression according to age, sex or stage, the same has been the case in previous studies.

## CONCLUSION

On the basis of above study it can be concluded that Delta Np63 has no significant difference in expression among the study population and control population .There was no significant difference in the expression of Delta Np63 on age, sex or stage basis.

However, the sample size being small as in this study, limiting the power of the study, it stills gives an insight about the role of Delta Np63 gene in early detection and prognosis of esophageal cancers.

There is no Conflict of Interest among the Authors

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