

Retrospective study of association of pretreatment nutritional status with treatment outcome of radiotherapy in head and neck cancer

Mohammad M. Emarah⁽¹⁾, Nadia A. El-Deeb⁽¹⁾, Abdel Aziz M. Belal⁽¹⁾, Waleed O. Arafat⁽¹⁾

⁽¹⁾ Alexandria Clinical Oncology Department (ACOD), Faculty Of Medicine, Alexandria University, Egypt.

INTRODUCTION Nutritional deterioration is common in patients with head and neck squamous cell carcinoma (HNSCC) who undergo radiotherapy (RT). How baseline nutritional status affects outcome is contradicting between trials.

OBJECTIVE To determine whether some major nutritional parameters, namely BMI, hemoglobin and serum albumin, before RT for HNSCC predict survival and locoregional control.

METHODS Retrospective study included patients with pathologically proven HNSCC undergoing definitive RT at a single tertiary level referral university cancer center, Alexandria Clinical Oncology Department (ACOD), during the period from January 1, 2005 to December 31, 2015. The effect of pre-RT BMI, serum hemoglobin and serum albumin on survival and disease control were evaluated.

RESULTS 215 patients met our inclusion criteria. Of these, 31 (14.4%) were women and 184 (85.6%) were men. Their mean age was 57.21 (+/- 9.7). Laryngeal SCC constituted most of cases with 84 (39.06%) patients followed by oropharyngeal SCC with 69 (32.1%) patients. In multivariate analysis, BMI (>25 vs ≤25) and hemoglobin (<=12g/dl vs >12g/dl for females and ≤14g/dl vs >14g/dl for males) pre-RT correlated significantly with both survival ((HR, .409; 95%CI, 0.254-0.659; *P* = <.0001) for BMI and (HR, .367; 95%CI,0.211-0.639; *P* = <.0001) for hemoglobin) and locoregional control ((HR, .431; 95%CI, 0.246-0.755; *P* = .003) for BMI and (HR, 2.554; 95%CI,1.328-4.911; *P* = .005) for hemoglobin). In contrast, Serum albumin showed insignificant correlation, both when taken as a continuous variable and when taken as a categorical variable (<3.5mg/dl vs ≥3.5mg/dl), with both survival (HR,1.035;95%CI,.429-2.498; *P* = .939) and locoregional control(HR,1.688;95%CI,.655-4.351;*P*=.279).

CONCLUSIONS BMI and hemoglobin pre-treatment can predict oncologic outcomes for patients with HNSCC, whereas pre-treatment serum albumin does not predict locoregional control nor survival. Our study can be the basis to use easy-to-obtain parameters like BMI and hemoglobin to stratify HNSCC patients who are in need for more in-depth nutritional assessment and interventions pre-RT with hope of reflection on treatment outcome.