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Serum hemoglobin and relation to the staging of patients with breast cancer before the start of radical radiotherapy

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Introduction: Among cancers, breast cancer is the leading cause of death from cancer in Brazilian women, second only to lung cancer worldwide. Few data are available in the literature portraying the prevalence of lower hemoglobin levels in cancer patients, especially if related to a worse prognosis with a more aggressive disease. Therefore, scientific studies are needed to make the relationship with such a pathology consistent. **Objective:** The objective of this study was to assess serum hemoglobin levels and whether this is associated with worse staging in patients with breast cancer indicated for radiotherapy treatment. **Methodology:** This is a prospective, descriptive, and longitudinal study with patients with breast cancer referred for radical radiotherapy, through the evaluation of blood hemoglobin and its initial staging. **Results:** We evaluated 40 patients with a mean age of 63.7 years (30–81/95%CI 60.4–67/SD±10.3). Mean serum hemoglobin was 12.6 g/dl (9–15.3/95%CI 12.1–13.1/SD±1.4). Four (10%) patients stage Ia, 9 (22.5%) stage Ib, 9 (22.5%) stage IIa, 11 (27.5%) stage IIB, and 7 (17.5%) stage IIIa were observed. A cohort study was conducted on patients, classifying them into group 1 with 13 patients (32.5% — stages Ia and Ib), group 2 with 20 patients (50% — stages IIa and IIb), and group 3 with 7 patients (17.5% — stage IIIa). The mean hemoglobin in group 1 was 13.9 g/dl (95%CI 13.4–14.4/SD±0.9), mean hemoglobin in group 2 was 12.5 g/dl (95%CI 12.3–12.7/SD±0.5), and in group 3, mean hemoglobin was 10.4 g/dl (95%CI 9.3–11.5/SD±1.2) ($p<0.001$), demonstrating the existence of a statistically important relationship between worse staging and lower plasma hemoglobin levels. **Conclusion:** Patients with a worse prognosis may have lower plasma hemoglobin levels, which may demonstrate greater tumor aggressiveness in these patients.

Keywords: anemia; breast neoplasms; prognosis; radiotherapy; hemoglobins.