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Survival and prognostic factors in non metastatic breast cancer

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Issue: Breast cancer is the most common cancer of women in Tunisia and in the world. It represents a serious public health problem. Several studies have identified its standardized incidence, including two medical doctoral theses supervised by the radiotherapy department of the Salah Azaiz Institute of Tunis. Data about the prognosis and the evolutivity of this disease are not current. The study of survival and prognostic factors is essential to improve the prognosis of this disease.

Purpose: The aim of this study was to describe the clinical and therapeutic features of non-metastatic breast cancer, to calculate the overall survival at 5 years and 10 years, to investigate the prognostic factors of overall survival and disease-free survival, and to compare our results to those of a similar Tunisian study performed in 1994.

Materials and methods: This is a retrospective study of 474 patients with non-metastatic breast cancer diagnosed between January 1, 2004 and December 31, 2004, treated and followed at the Salah Azaiz Institute. Clinical, histological, therapeutic data have been collected. The patients have been divided into Groups according to T stage (Group 1: T0, T1, T2 and T3, Group 2: T4a, and T4b T4c, Group 3: T4d tumors) in accordance to the grouping method used in 1994. Our series of patients were also classified into Stages according to the classification of the AJCC 2010. Overall survival factors were studied for groups 1 and 2 and the disease-free survival factors were studied for the group 1, in order to compare our results with those of 1994. Similarly, overall survival factors were studied in the different stages in order to compare our results to the literature data. Univariate statistical analysis has been done by the Kaplan-Meier method and multivariate analysis by Cox regression method.

Results: Our study concerned 474 patients, including 12 (2.5%) men. The mean age was 51.8 years. The average clinical size was 39 mm. Stage II was the most common (55.9% of cases). Stage III accounted for 26.8% of the patients and inflammatory tumors 4.4% of the population. The median follow-up was 93 months. Distant failure was the most frequent way of relapse since 28.9% of patients developed metastasis during 10 years of follow up. Overall survival was 74.4% at 5 years and 54% at 10 years for all stages with an average survival of 95.8 months. There was a statistically significant difference between the different stages in terms of overall survival and disease-free survival (p <0.05). Independent factors of overall survival in stage II were tumor size, hormonal status, surgical limits and metastatic relapse. In stage III, we have retained the hormonal status and metastatic relapse as independent factors for overall survival. After univariate analysis, younger age and high grade SBR were the significant factors of local recurrence after conservative surgery (p ≤ 0.05). Yet, extracapsular extension in involved lymph nodes, was the only significant factor for local recurrence after mastectomy (p ≤ 0.05).). Young age, tumor size, an in situ component, extracapsular extension, hormonal status and local recurrence were significant factors for lymph node recurrence in the group of localized tumors (p ≤ 0.05). Prognostic factors for metastatic recurrence-free survival were searched in stages I and II. In univariate analysis, we have retained tumor size, lymph node status, number of involved lymph nodes, hormonal status, local recurrence and regional recurrence as significant factors for distant relapse in stage II. In stage III, age, time between surgery and radiotherapy and nodal status have emerged as significant factors for metastasis free survival. A comparative study between our results and those of the 1994 cohort has found a gain of 20% in terms of overall survival as the overall survival rate at 5 years was 53.2% in 1994. The difference in survival between two periods was statistically significant and was also observed at the specific survival. This survival benefit would be due to a decrease in tumor size at diagnosis (52 mm in 1994 vs 39 mm en 2004) and consequently a decrease in the rate of stage III tumors and especially the rate of inflammatory breast cancer

(10% in 1994 vs 4 4% in 2004). It would also be due to a decrease in the rate of lymph node invasion (76.8% in 1994 vs. 59% in 2004) and to a greater use of conservative surgery, chemotherapy, and endocrine therapy for the series of 2004 compared to the year1994.

Conclusion: The prognosis of our patients was particularly related to the stage of the disease and the quality of care reflecting some shortcomings of the health system. The improvement of prognosis between 1994 and 2004 was encouraging and impels to multiply efforts to establish early diagnosis and better health care.

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