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Breast conserving operations, prognostic factors and life quality

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The incidence of breast cancer in Latvia has increased. Early breast cancer ($T_1N_0M_0$) makes only 18% of all cases. The study comprised 247 patients treated at the Latvia Center of Oncology in the period 1990 - 1992. We analyzed the correlation between 5-year survival, risk factors, histology, age, and type of surgical treatment; 118 patients were treated postoperatively by adjuvant chemotherapy and radiotherapy. Data on life quality are shown in the study.

Key words: breast neoplasms; mastectomy-methods; prognosis

Introduction

The incidence of breast cancer in Latvia has increased. In 1996 it was 63.7 per 100000. During the last 10 years the incidence has been increasing approx. by 2% per year. Early breast cancer ($T_1N_0M_0$) makes only 18% of all cases. The role of adjuvant therapy in node-positive breast cancer patients is more or less clear. Such factors as pathology, number and localization of lymph nodes are considered.[1-4] Yet the use of systemic adjuvant therapy in patients with small tumors and negative lymph nodes is still unclear. For the last 10-15 years, breast cancer prognostic factors have been intensively investigated. Several new prognostic factors are being studied, which can play an important role in the selection of systemic adjuvant therapy, but often they are not available in the clinical practice.

More and more surgeons prefer breast conserving surgery, especially in small breast cancers. Yet, concerning prognosis, we must take into account several factors - tumor localization, incision margins, tumor histology, differentiation grade and others.[5] Node negative breast cancer is a heterogeneous disease because of its varying tumor growth rate, invasiveness potential and generalization rate (metastasizing potential). We must admit that no relapse was observed in 70% of cases after surgical treatment and radiation, and therefore the use of systemic adjuvant therapy in all breast cancer patients is questionable. Side-effects and costs of chemotherapy must also be considered. Yet the use of systemic therapy in high risk patients after surgical treatment is still to be decided. Low-risk patients can be treated by surgery alone.

Type of surgical treatment plays an important role in the quality of patients' life. Psychological aspects, as well as mobility of the arm, should be considered.

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Patients and methods

From 1990 - 1993, 247 patients with breast cancer ($T_1N_0M_0$) were treated at Latvia Center of Oncology. The date of the patient's admission to the hospital was taken as the beginning of treatment. Disease-free survival was assessed till the onset of relapse or diagnosis of distant metastases. Overall survival was assessed till exitus letalis, when the file was removed from the registry. Survival rate was calculated till January 1, 1997. The prognostic factors were analyzed using univariate and multivariate methods, with the aim to assess simultaneous effect of different prognostic factors on the overall survival, as well as to determine the impor-

tance of different prognostic factors, and evaluate the differences and similarity of information acquired from the prognostic factors.

Radical mastectomy after Halsted was performed in 106 patients, amputation - in 24, breast conserving operation after Patey - in 78, and quadrantectomy with axillary clearance - in 39 patients. Tumor localization was as follows: medial - in 41 patient, lateral - in 128, central - in 25, and areolar - in 53 patients. The distribution by histological finding was as follows: intraductal cancer - 99 patients, lobular - 66, and other - 82 patients. Distribution by age: under 41 years - 31 patient, 41 - 50 years - 59 patients, 51 - 60 years - 64 patients, and above 61 years - 93 patients.

Positive familial history was observed in 8 patients only. Relapse and metastases were observed in 0.4%. During treatment, 101 patient received postoperative radiation, but 17 patients were treated by chemotherapy due to poor prognosis.

Besides, the edema in the arm 10 cm above the medial epicondyle of the humerus was estimated. If the circumference of the affected arm was 2.5-3 cm bigger than that of the healthy one, it was considered as a complication. The amplitude of movements was assessed by lifting the arm (abduction and adduction) from 0-180°; if it was limited by 10°, it was considered as a complication. On check-ups the patients were inquired about pain and paresthesia in the site of operation.

Results

The size of tumor in all patients was up to 2 cm, which corresponds to T_1. We analyzed the correlation between tumor localization and survival (Figure 1).

The cumulative rate of 5-year survival was the lowest in the case of tumor localization in the areolar area – 0.827 ± 0.22 ($p < 0.05$). Survival rate in the case of tumor localization in the medial quadrant was 0.861 ± 0.019; in the case of central localization - 0.931 ± 0.015. Patients with tumor localization in the lateral part of the breast were clinically healthy and alive throughout the follow-up period.

The correlation between the histological type and 5-year survival is shown in Figure 2. No significant difference was observed between ductal cancer and cancers of other types: 0.917 ± 0.017 and 0.912 ± 0.017. Slightly higher survival rate was observed in patients with lobular cancer - 0.930 ± 0.019.

Figure 3 shows the survival of patients in different age groups. The highest survival rate was in the age group below 40 years - 0.964 ± 0.008, and in the age group 41 - 50 years - 0.909 ± 0.013; 5-year survival in the age group above 60 years was 0.843 ± 0.016, but in the age group 51 - 60 years it was the lowest - 0.880 ± 0.028 ($p < 0.05$).

In the study we analyzed the correlation between the survival and type of surgical treatment (Figure 4). No significant difference in survival rates was observed in groups with quadrantectomy and mastectomy: 0.874 ± 0.021 and 0.878 ± 0.012, respectively. The results differed in the group after breast amputation - 0.818 ± 0.022.

In patients with poor prognosis, radiation to the breast or regional lymph nodes was suggested. Figure 5 shows 5-year survival in a group of 101 patient: 0.854 ± 0.017 patients were treated by adjuvant chemotherapy after surgery; 5-year survival was 0.816 ± 0.024 (Figure 6).

Evaluating the quality of patients' life, we found that 60% complained about loss of sensation and paresthesia in the operation site. Edema was observed in 7.8% after breast conserving surgery - quadrantectomy, in 15% after modified radical mastectomy, and in 18% after mastectomy.

Impaired shoulder mobility was observed in 11% of patients after mastectomy or modified radical mastectomy modus Patey. Impaired arm mobility was observed in 24% of patients treated by postoperative radiation therapy. In the group with systemic adjuvant chemotherapy, restriction of movement was observed in 1 patient only.

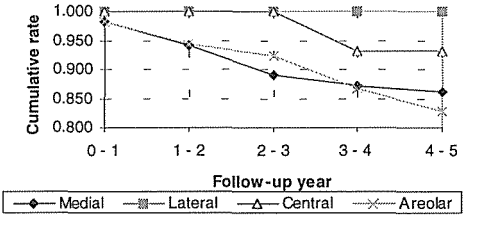

Figure 1. Correlation between tumor localization and survival.

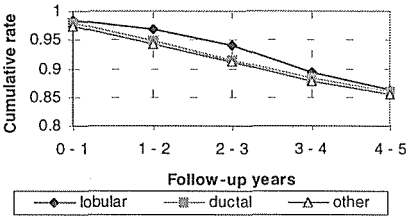

Figure 2. Correlation between histological type and survival.

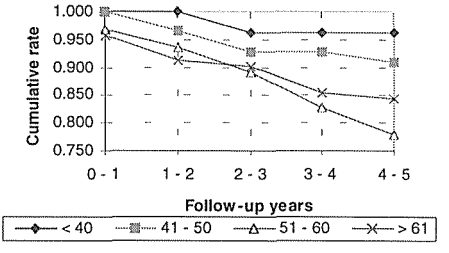

Figure 3. Survival in different age groups.

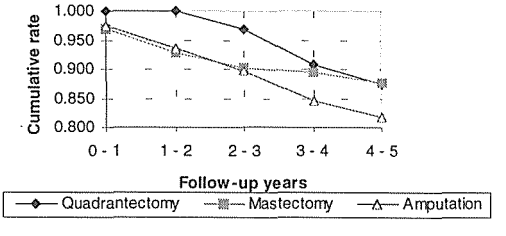

Figure 4. Correlation between the type of surgical treatment and survival.

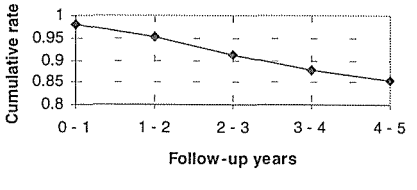

Figure 5. Survival rate in patients with radiotherapy.

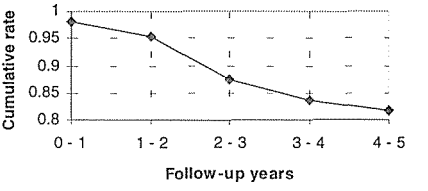

Figure 6. Survival rate in patients with adjuvant chemotherapy.

Discussion and conclusions

Tumor localization plays a role in the choice of surgical treatment, i.e. the extent of surgery. At present there is a tendency to use breast conserving operations in the case of a small tumor. Around 1990, the attitude of oncologists in Latvia towards this tendency was very cautious. There was an opinion that only classical mastectomy after Halsted can give good results. Little by little, the attitude has changed. Local recurrences in the scar after breast conserving operations were observed in 0.4% of cases only, but we must admit that the number of patients was small. Veronesi *et al.*[6] found 2.8% local recurrences after quadrantectomy. In large retrospective studies the rate of local recurrence was even higher - 7% in 5 years of follow up.[7] In our study the patients, who died within 5-year follow-up period had distant metastases, mainly pleural and pulmonal.

Tumor localization also plays an important prognostic role. According to our data, long-term results are worse in patients with tumor localization in the areolar area, central part and medial quadrant. With respect to the histological form, better survival was observed in the case of lobular cancer in the 2nd and 3rd year, but no difference was observed in the 5th year. In choosing the type of surgery according to tumor localization, histological form and the patient's age, we must take into account that small tumors tend to spread through the ductal system. Santini *et al.*[5] describe the growth type of such tumors and their presence in the areolar complex. Comparing different types of surgical treatments, according to our data there is no difference between quadrantectomy and mastectomy. Five-year survival rate was practically the same.

Therefore, conserving operations (such as quadrantectomy) in the case of small tumors are reasonable. But the surgeon must be very cautious to perform an adequate operation. In the case of central localization or localization in the areolar area, we perform histological examination of the incision margin to ensure that no tumor cells have remained around the incision. completeness of surgery. According to our data, the worst results were observed in postmenopausal women in the age group 51 - 60 years and older.

The use of additional radiotherapy in patients without metastases in lymph nodes is questionable. In our center radiation therapy was performed in 101 cases - in patients with tumor localization in the central part and in the areola or in the medial quadrant. After surgery, patients received radiotherapy with 45 Gy to infra and supra clavicular regions and parasternal area, 50 Gy to the breast, and additional 10 Gy as a boost. After consultation and individual assessment, chemotherapy was performed in 17 patients according to CMF regimen.

Data from large randomized trials suggest that adjuvant chemotherapy increases disease-free survival, as well as overall survival in node-negative breast cancer patients.[8, 9,10] Yet, the question about the need of adjuvant chemotherapy or radiotherapy in high-risk patients remains to be solved.

Breast conserving operations have clear advantages in terms of the quality of life, at least with respect to psychological factors. There were no complications observed after breast conserving operations and chemotherapy. Edema of the arm and movement restriction occurred mainly after classical mastectomy and after radiation following radical mastectomy. Radiation therapy in high-risk patients increased the possibility of late complications which affected the quality of life. Several other studies have given similar data.[12,13]

Results of our study suggest that in the case of early breast cancer (T_1) breast conserving surgery - quadrantectomy should be performed. Additional therapy is required in high risk patients. Taking into account the quality of life, adjuvant chemotherapy is the method of choice. Yet more investigations are necessary to evaluate additional risk factors that could be easily applied in the practical work, as well as to increase the number of patients under study.

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