

Long-Term Quality of Life in Patients after Mastectomy

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Abstract We conducted a questionnaire survey to evaluate the long-term quality of life (QOL) in 137 patients with breast cancer who underwent radical mastectomy. QOL factors consist functional impairment in the upper limb on the affected side, activity of daily life (ADL), state of daily life (SDL), the status of postoperative rehabilitation, mental activities, physical activities, satisfaction of the surgery, anxiety for recurrence of cancer, cosmetic factor (changes in the body image). In the upper limb on the affected side, swelling was observed in 32%, decreased muscle strength in 25%, pain in 14%, limitation in the range of motion in 14%, and sensory impairment in 7%. However, evaluation of the items of the ADL questionnaire revealed specific disturbance in daily life in more than 50% of respondents. Patients who showed marked functional impairment in this limb had other QOL factors, such as the desire to do mental and physical activities which were also significantly poor. Of these patients, 108 (79%) replied that state of daily living (SDL) did not change after the survey. Sixteen percent of the patients were not satisfied with the results of their surgery, and they often noted marked functional impairment in the upper limb. Anxiety about recurrence of cancer was more in the middle aged group (65 years or more) than in the aged group (less than 65 old). Anxiety persisted even in patients showing a long survival without regard to aging. Against changes in the body image, ie., loss of the breast, most patients used prosthetic devices in a brassiere and clothes. These results suggested the need to develop prosthetic consultation for each patient, and instruction in post operative care to help prevent functional impairment in the upper limb, continuous nursing intervention to the anxiety about recurrence of cancer might be needed. to various level of the functional impairment in the upper limb.

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Key Words : long-term, patients after mastectomy, QOL, ADL, functional impairment in the upper limb

Introduction

The sequelae of mastectomy with axillary lymph node dissection for breast cancer includes functional impairment in the upper limb on the affected side, and cosmetic suffering and psychological affliction associated with the loss of the breast. Anxiety for recurrence of cancer also persists. These sequelae may restrict physical, mental, and social activities, decreasing the long-term postoperative quality of life (QOL). For this reason, breast-preserving therapy has been frequently used for early breast cancer since 1980 in western countries and since 1990 in

Japan¹⁾²⁾. This breast-preserving therapy does not differ from mastectomy in terms of disease-free survival and is considered to be useful for improving QOL from the body image³⁾⁴⁾. However, with axillary lymph node dissection standard mastectomy is still widely used for advanced breast cancer. Therefore, to clarify the long-term postoperative QOL in patients with mastectomy, we conducted a questionnaire survey and evaluated the role of postoperative nursing care.

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Patients and Methods

1. Subjects

The subjects were 137 patients with breast cancer who underwent mastectomy with axillary lymph node dissection at 2nd department of surgery, Nagasaki University between 1960 and 1993. Breast-preserving therapy such as lumpectomy began to be preformed at our department in 1992. However, patients who underwent this therapy were excluded because of the short follow-up.

All patients were females, and their mean age \pm standard deviation was 65.1 ± 12.6 years. Seventy-one patients were less than 65 old (middle aged group), and 66 were 65 years or more (aged group). The mean postoperative period \pm standard deviation was 14.1 ± 8.7 years. Fifty-seven patients underwent mastectomy in 1979 or earlier and 80 after 1980. Surgical procedure classified to the following: mastectomy + axillary lymph node dissection 25 cases, mastectomy + axillary lymph node dissection + resection of minor pectoral muscle 57 cases, mastectomy + axillary lymph node dissection + resection of both minor and major pectoral muscle 55 cases.

2. Method

1) Questionnaire

We instituted the QOL factors consist as follows, make questionnaire included these and sent to 227 patients.

The questionnaire was sent by mail to 227 patients, of whom 149 (66%) replied. Of these

patients, 12 who died were excluded, and the remaining 137 were evaluated. The questionnaire consisted of multiple choice answers for each question. Though some patients did not chose to answer some items, they were included in the evaluation. Therefore, the statistical evaluation differed in some items.

2) Statistical analysis

Results were mainly expressed as percentages. Differences were analyzed by the χ^2 test and student t-test, and $p < 0.05$ was considered to be significant.

Results

1. Functional impairment in the upper limb on the affected side

The function of the upper limb on the affected side was investigated in terms of 5 items: swelling, decreased muscle strength, pain, limitation in the range of motion, and sensory abnormality (numbness). In each item, the constant presence of the symptom was expressed as (+), presence of the symptom under specific conditions as (\pm), and the absence of abnormality as (-). Concerning comprehensive impairment in the upper limb on the affected side, patients showing (-) in all items were classified as a normal group (grade 1), those showing (\pm) in at least 1 item as a slight impairment group (grade 2), those showing (+) in at least 1 item as a moderate impairment group (grade 3), and those showing (+) in 2 items or more as a marked impairment group (grade 4).

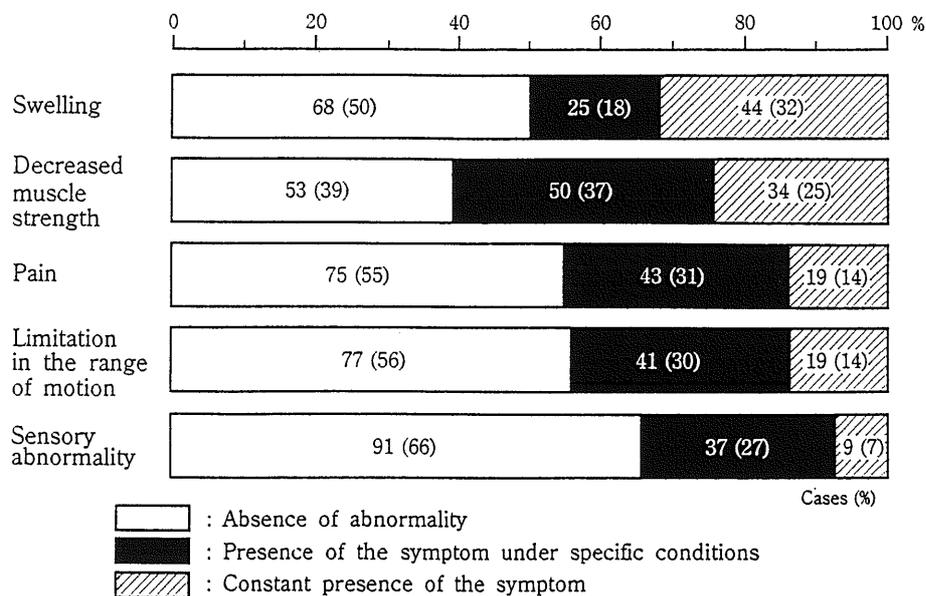


Fig 1. The functional impairment in the upper limb (N=137)

Long-Term Quality of Life in Patients after Mastectomy

In the upper limb on the affected side, swelling was observed in 44 patients, decreased muscle strength in 34, pain in 19, limitation in the range of motion in 19, and sensory abnormality in 9.25% of patients showed comprehensive impairment in the arm (Grade 1 ~ 4) (Fig. 1).

In the 5 items for functional impairment of the upper limb on the affected side, the positive rate was evaluated according to the operative procedure. The degree of impairment was decreased in all items in the group treated by mastectomy with axillary lymph node dissection as compared with the group with resection of the minor pectoral muscle and the group with resection of minor and major pectoral muscles. The incidences of all items except swelling were significantly lower in the group treated by mastectomy with axillary lymph node dissection alone. Comparison between the lat-

ter two groups showed no significant differences in the incidence of each item (Table 1).

2. ADL

Among ADL, 10 items were investigated: putting in and taking out a futon (Japanese mattress and quilt), mopping the floor, shopping, cleaning using a vacuum cleaner, cooking, dressing and undressing, hairdressing, bathing, washing, and others. ADL was not impaired in 64 patients (47%). The major items showing impairment were putting in and taking out a futon (48 patients), mopping the floor (42), and shopping (28). Rare complaints included difficulty in doing up a Japanese sash or wiping after defecation. Correlation between the incidence of ADL and the functional impairment in the upper limb by χ^2 test, the incidence of ADL impairment was significantly higher in patients with more marked functional impairment in the upper limb (Table 2).

Table 1. Degree of impairment in the upper limb due to some surgical procedures

Surgical procedure	Cases	Swelling	Decreased muscle strength	Pain	Limitation in the range of motion	Sensory abnormality
Br + Ax + (Ps ^a)	25	6	1	0	0	0
Br + Ax + Mn + (Ps ^b)	57	18	16	9	6	3
Br + Ax + (Mn) + Mj + (Ps ^c)	55	20	16	10	13	6
Total (%)	137	44 (32)	33 (24)	19 (14)	19 (14)	9 (6)

Ps^a: 5 cases, Ps^b: 10 cases, Ps^c: 30 cases, Ps

Multiple answer, cases (%)

Br : mastectomy

Ax : axillary lymph node dissection

Ps : parasternal lymph node dissection

Mn : resection of minor pectoral muscle

Mj : resection of major pectoral muscle

Table 2. Grade of comprehensive impairment in the upper limb and items with disturbance in ADL

Items with disturbance in ADL	Grade of comprehensive impairment in the upper limb				Total (137 cases)
	I (35 cases)	II (35 cases)	III (32 cases)	IV (35 cases)	
Putting in and taking out a "Futon"	2	14	11	21	48
Mopping floor	3	6	8	25	42
Shopping	2	7	5	14	28
Cleaning	2	6	7	10	25
Cooking	0	2	3	10	15
Dressing and undressing	1	3	2	6	12
Hair dressing	1	1	2	5	9
Bathing	0	0	1	5	6
Washing	0	1	1	4	6
Without any disturbance *	31 (89%)	15 (43%)	44 (14%)	4 (11%)	64 (47%)

* Grade I vs Grade IV; $p < 0.01$, Grade I vs Grade II, III; $p < 0.05$, Grade II, III vs Grade IV; $p < 0.05$.

3. SDL

SDL did not change after mastectomy (grade 1 SDL) in 108 (79%) of the 137 patients. SDL slightly decreased after operation (grade 2 SDL) in 11 patients and definitely decreased (grade 3 SDL) in 11 patients. The other 7 patients were being treated at the hospital (grade 4 SDL). The 29 patients showing decreased SDL consisted of 9 of the 71 patients in the middle aged group and 20 of the 66 in the aged group. Decreased SDL was significantly more frequently observed in the aged group. However, the follow-up period did not significantly differ between the two groups (Table 3). Of the 7 inpatients, 1 each had recurrence of breast cancer and colon cancer, and the other 5 had senile diseases.

4. The status of postoperative rehabilitation

The status of postoperative rehabilitation was investigated. Of the 137 patients, 53 returned to their former work position, 3 found new employment, 6 changed their job to a lighter one, 13 temporarily retired, 14 permanently retired, 43 were full-time housewives both before and after operation, and 5 did not reply. The types of occupation varied, and there were full-time workers, part-time workers, assistants of self-employed business, and full-time housewives. Five patients retired because they reached the retirement age. Therefore, evaluation of the status of rehabilitation according to the rate of resumption of work appeared to be inappropriate.

Table 3. State of daily life according to the age groups and postoperative period

State of daily life		Age		Postoperative period	
State	Case (%)	Middle group (65<)	Aged group (65≥)	Less than 15 years	More than 15 years
1	108 (79)	62 (87) ^a	46 (69) ^a	63 (79)	45 (79)
2	11 (8)	6 (9)	5 (8)	9 (11)	2 (3)
3	11 (8)	2 (3)	9 (14)	6 (7)	5 (9)
in patient	7 (5)	1 (1)	6 (9)	2 (3)	5 (9)
Total	137 (100)	71 (100)	66 (100)	80 (100)	57 (100)

State 1: no change 2: slightly decreased after operation Case (%)
3: definitely decreased after operation a: p<0.05

Table 4. Various QOL factors in age and postoperative period

QOL			Age		Postoperative period	
QOL factors	Grade	Cases (%)	Middle group	Aged group	Less than 15 years	More than 15 years
Mental activity	1	88 (64)	53 (75)	35 (53)	55 (69)	33 (58)
	2	36 (26)	17 (24)	19 (29)	20 (25)	16 (28)
	3	13 (10)	1 (1) ^a	12 (18) ^a	5 (6)	8 (14)
Physical activity	1	62 (45)	43 (61)	19 (29)	42 (53)	20 (35)
	2	54 (39)	24 (34)	30 (45)	33 (41)	21 (37)
	3	21 (15)	4 (6) ^a	17 (26) ^a	5 (6) ^a	16 (28) ^a
Degree of satisfaction with the postoperative results	1	114 (84)	62 (87)	52 (81)	69 (86)	45 (82)
	2	12 (9)	5 (7)	7 (11)	9 (11)	3 (5)
	3	9 (7)	4 (6)	5 (8)	2 (3)	7 (13)
Degree of anxiety for recurrence of cancer	1	62 (46)	24 (33) ^a	38 (60) ^a	35 (44)	27 (49)
	2	59 (44)	40 (56)	19 (30)	37 (46)	22 (40)
	3	14 (10)	8 (11)	6 (10)	8 (10)	6 (11)

Grade 1: good, Grade 2: slightly poor (fair), Grade 3: poor Case (%)
a: p<0.05

5. Mental activities

The desire to do mental activities did not change after mastectomy in 88 patients (64%), slightly decreased in 36 (26%), and definitely decreased in 13 (10%). According to the age groups, decreased desire was significantly more frequently observed in the aged group (12 of the 13 patients) than in the middle aged group (Table 4).

6. Physical activities

The desire to do physical activities did not change after operation in 62 patients (45%), slightly decreased in 54 (39%), and definitely decreased in 21 (15%). Decreased desire was significantly more frequently observed in the aged group (17 patients) according to the age groups and in the patients showing a follow-up period of 15 years or more (16 patients). There were more patients who complained of decreased physical activities than those who complained of decreased mental activities (Table 4).

7. Satisfaction of the surgery

Concerning the degree of satisfaction with the results of their surgery, 114 of 135 patients (84%) were satisfied or almost satisfied with the results of operation, 12 (9%) were slightly dissatisfied, and 9 (7%) were very dissatisfied. No significant differences were observed according to the age group or the postoperative period. However, in the patients who were dissatisfied with the results of surgery, the desire to do mental activities was significantly decreased (Table 4).

8. Anxiety for recurrence of cancer

Concerning the degree of anxiety for recurrence of cancer, 62 patients (46%) were not anxious, 59 (44%) were sometimes anxious, and 14 (10%) were constantly anxious. According to the age groups, the degree of anxiety was significantly higher in the middle aged group. According to the postoperative period, no significant differences were observed, suggesting that anxiety about recurrence of cancer does not disappear even in patients with a long follow-up (Table 4). No association was observed between the degree of anxiety for recurrence and the desire to do mental activities.

9. Cosmetic factor (changes in the body image)

Only 11 patients (8%) underwent breast reconstruction, which was performed simultaneously with mastectomy. Of the 11 patients, 6 complained of asymmetrical breasts or lack of the papilla and areola. In 1 patient who underwent insertion of a silicon pack, the pack was removed later. Of 90 patients, 3 patients aged less than 60 years desired second stage breast reconstruction, 5 were considering it, but 82 did not desire reconstruction. The other 36 patients did not reply, showing little concern for cosmetic problems. In young patients, most patients used some prosthetic devices in clothes such as insertion of a pad into a brassiere.

10. Functional impairment in the upper limb on the affected side and QOL

The association between the functional impairment

Table 5. Association between the functional impairment in the upper limb and QOL factors

Grade of comprehensive impairment	State of daily life	Mental activity	Physical activity	Degree of satisfaction with the operative results			Degree of anxiety for recurrence of cancer		
				1	2	3	1	2	3
Grade Cases	1 2 3 in patient	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3			
I 35	29 2 3 1	30 4 1	25 8 2	33 1 1	22 11 1				
II 35	30 3 2 0	23 10 2	17 16 2	32 2 1	12 13 5				
III 32	29 2 1 0	22 9 1	14 17 1	27 4 1	18 13 1				
IV 35	20 4 5 6	13 13 9	6 13 16	22 5 6	10 17 6				
Total 137 (%)	108 11 11 7 (79) (8) (8) (5)	88 36 13 (64) (26) (10)	62 54 21 (45) (39) (15)	114 12 9 (84) (9) (7)	62 59 14 (46) (44) (10)				

Case (%)

in the upper limb and various QOL factors was evaluated. The marked impairment group (grade 4) showed more disturbance in ADL and the desire to do mental and physical activities and frequent dissatisfaction with operation compared with the slight or moderately impaired group. With the degree of functional impairment in this limb, the degree of anxiety for recurrence of cancer increased. However, even in the slight impairment group, many patients showed persistent anxiety, and no association was observed between the degree of anxiety and the degree of functional impairment (Table 5).

Discussion

Assessment of QOL concerning health is performed by measuring the states of physical, mental, and social activities from many aspects by appropriate reliable methods⁽⁵⁾⁽⁶⁾⁽⁷⁾. Assessment by the patients themselves is desirable, and utilization of the results of the assessment for nursing care is important⁽⁸⁾⁽⁹⁾⁽¹⁰⁾. On the other hand, QOL continues to change with patient's values concerning health, aging, living ability, and living environment⁽⁸⁾⁽¹¹⁾⁽¹²⁾. Ferrans used 35 situations as parameters in 4 areas (health and functional, socioeconomical, psychological/spiritual, and familial) for the measurement of QOL in cancer patients and evaluated the degree of satisfaction with life and the relation between the patient and others in terms of health⁽³⁾. QOL is affected by the method of obtaining informed consent by medical staff and patient's ability to recognize and accept the information⁽⁹⁾⁽¹⁴⁾.

This study was carried out to evaluate the effects of sequelae of mastectomy on various factors constituting QOL. Symptoms or functional impairment in the upper limb on the affected side after mastectomy with axillary lymph node dissection are unavoidable. In particular, the incidence of functional impairment was significantly higher in the groups treated by resection of the minor or minor and major pectoral muscles in combination with mastectomy and axillary lymph node dissection than in the group treated by the latter procedures alone. So nurse should know what kind of surgical procedure would be done, and forecast the level of the functional impairment in the upper limb, and to notify the aims and methods of the rehabilitation to the patients before the surgery.

No change was observed in ADL after surgery in

79% of the patients. Among them, there were patients who complained of functional impairment in the upper limb on the affected side, decreased mental or physical activities, dissatisfaction with results of the operation, or anxiety for recurrence of cancer. These findings suggest that patients showing good SDL do not always have good QOL. Even among patients showing impairment in the upper limb, many reported no change in SDL after surgery or return to work. This does not indicate the absence of functional impairment but suggests that these patients overcome functional impairment and have high self-care ability. Patients with marked impairment not only showed decreased desire to do physical activities⁽¹⁵⁾ but also were dissatisfied with results of operation and showed decreased desire to do mental activities. Nursing care should be geared toward decreasing swelling in the upper limb, massage of the upper limb by specialists, application of underwear preventing swelling, avoidance of clothes that bind the arm, avoidance of holding heavy things for a long time, and prevention of postoperative obesity. Since no differences in QOL have been reported between mastectomy and breast-preserving therapy⁽¹⁶⁾, reduction in the functional impairment in the upper limb appears to be indispensable to improving QOL.

The number of patients who were dissatisfied with the surgical procedure did not differ according to the age groups or the follow-up period. The number of patients who were anxious about recurrence of cancer was higher in middle aged patients, and the anxiety persisted even in patients with a long follow-up period. Anxiety for recurrence was not always associated with functional impairment in the upper limb or decreased desire to do mental activities. Since the degree of satisfaction with the surgery was not associated with anxiety for recurrence, this dissatisfaction may be due to appearance of the chest wall after loss of the breast. Thus, evaluation of patients' body image and self-esteem should be carried out throughout the patient's life. It is important to help patients to recognize and accept their situation in a supportive manner⁽⁹⁾⁽¹²⁾⁽¹⁷⁾. This may lead to decrease in dissatisfaction with results of surgery and nursing intervention reduce anxiety for recurrence of cancer.

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乳房切断術患者の術後遠隔期におけるQOLに関する研究

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要 旨 根治的乳房切断術を受けた乳癌患者137例について、術後遠隔時のQOLをアンケート調査票を送付して行った。QOLの構成因子を患側上肢の機能障害、Activity of Daily Life (以下ADL)、State of Daily Life (以下SDL)、就労状況、身体的活動意欲、精神的活動意欲、手術満足度、癌再発不安度、ボディ・イメージの変容とした。患側上肢の自覚症状として、腫脹32%、筋力低下25%、疼痛14%、可動域制限14%、知覚異常7%が認められた。ADLを各項目別に検討すると、過半数の例に何らかの支障を認めた。これら機能障害の高度な例では、身体的・精神的活動意欲などの他のQOL因子も有意に不良であった。SDLが術前と不変と回答した例は108例中79%であった。手術不満例は16%であり、上肢の高度機能障害例に多かった。癌再発不安は、65歳以上の高齢者群に比し、65歳未満の若年者群に有意に高く、長期経過例であっても不安は解消されていなかった。乳房喪失というボディ・イメージの変容に対して、大多数の症例がブラジャー、衣服の工夫を行っていた。

以上により種々の程度の上肢の機能障害に対し、各人に適合した補整具の開発やアフタケアを含めた指導や、癌再発不安などに対する継続的な看護が重要であると考えられた。

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Key words : 遠隔期, 乳房切断術患者, QOL, ADL, 上肢機能障害