

5.0 RESULTS

5.1 Patient Demographics

Between 1st January 1999 and 31st December 2000, 268 patients diagnosed with non-metastatic invasive breast cancer were identified. The patient demographics are outlined in Table 2. The mean age was 50 years (range 26-81years). The highest incidence was in the Chinese ethnic group followed by Malay and Indian. The most common tumour size was between 2 and 5 cm. 50% of the population had positive axillary nodes. Grade 2 tumour was found to be the most prevalent followed by grade 3 and grade 1. More than half of patients had oestrogen receptor positive disease. A large proportion of patients had mastectomy which constituted 73.1% of the population and the remainders had breast conservation surgery.

Table 3 shows the types of adjuvant treatment received following BCS and mastectomy. Of all breast conservation surgery patients, only 81.9% had radiotherapy. More than half of patients who had mastectomy received radiotherapy. Most patients received systemic treatment after surgery which included either chemotherapy or tamoxifen or both.

Table 2 – Patient Demographics

Variable	n=268	%
Age		
< 35	15	5.6
35-70	241	89.9
> 70	12	4.5
Ethnic group		
Malay	53	19.8
Chinese	174	64.9
Indian	37	13.8
Others	4	1.5
Tumor size		
≤ 2cm	95	35.4
> 2 and ≤ 5 cm	139	51.9
> 5cm	33	12.3
Unknown	1	0.4
Axillary nodes status		
Positive 1-3	82	30.6
Positive 4-9	36	13.4
Positive > 10	16	6.0
Negative	134	50.0
Histologic grade		
G1	25	9.3
G2	107	39.9
G3	80	29.9
Unknown	56	20.9
Oestrogen receptor status (ER)		
Positive	147	54.9
Negative	104	38.8
Unknown	17	6.3
Types of surgery		
BCS	72	26.9
Mastectomy	196	73.1

Table 3 – Types of adjuvant therapy

Adjuvant treatment	Types of surgery	
	BCS n = 72 (%)	Mastectomy n = 196 (%)
Radiotherapy	59 (81.9)	132 (67.3)
Systemic therapy [#]	65 (90.3)	186 (94.9)

Note: Some patients received both radiotherapy and systemic therapy for adjuvant treatment, hence the total percentages are greater than 100%.

Includes chemotherapy and tamoxifen.

5.2 Patterns of Relapse

5.2.1 Sites of Relapse

The patients were followed for a median of 50 months (range 5 to 107 months). Out of 268 patients, 73 patients (27.2%) developed relapse after completing initial treatment. A total of 15 patients (5.5%) had local relapse, 5 patients (1.9%) had regional relapse and 53 patients (19.8%) had distant relapse. This is illustrated in Table 4. Out of 53 patients with distant relapses, 22 patients had more than one site of distant relapse, whereas 31 patients had only one site of distant relapse. Table 5 shows the number of patients according to sites of distant relapse. The most common site of distant relapse was the lung which accounted for 25 patients (47.2%).

Table 4 - Relapse rate

Sites of relapse	n=268	%
Not relapsed	195	72.8
Relapsed	73	27.2
- Local Relapse	15	5.5
- Regional Relapse	5	1.9
- Distant Relapse	53	19.8

Table 5 - Number of relapse according to sites of distant relapse

Sites of distant relapse	Number of patients	%
Bone	24	45.3
Lung	25	47.2
Liver	8	15.1
Brain	9	16.9
Others *	9	16.9

Note: Patients may have more than one site of distant relapse, hence the total percentage is greater than 100%.

*Other sites involved were ovary, peritoneum and adrenal gland

5.2.2 Risk of Relapse

The median time interval between surgery and the diagnosis of relapse was 29 months (range 1- 92 months). The relapse rate was 3.7% at 12 months after surgery, rising to 9.7% at 24 months, then declined to 2.4% at 36 months. Risk of relapse declined steadily after five years to less than 5.0%, as shown in Figure 1.

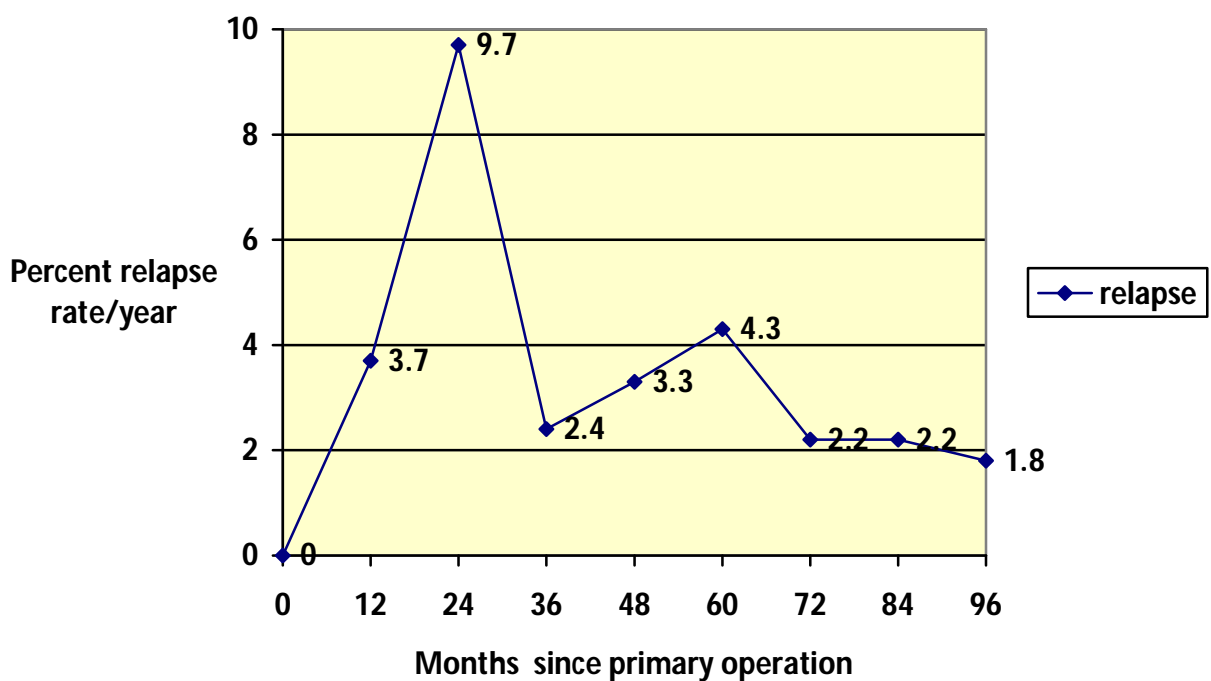


Figure 1 - Yearly risk of relapse after primary surgery for breast cancer.

5.3 Clinicopathological Factors Associated with Relapse

5.3.1 Stage of Primary Tumour

Stage of primary tumour was found to be positively correlated with relapse and the correlation was statistically significant, $r = 0.254$ ($p = 0.031$). This is shown in Table 6. The frequency of relapse increased with increasing stage.

Table 6 - Number of relapse according to stage of primary tumour

Stage	Total no. of patients (X) n = 268	No. of relapse(Y) n = 73	Percentage (Y/X x 100%)
1	69	12	17.4
2	121	27	22.3
3	78	34	43.6

5.3.2 Size of Primary Tumour

Size of primary tumour was found to have no correlation with relapse, $r = 0.086$ ($p = 0.08$), as shown in Table 7.

Table 7 – Number of relapse according to size of primary tumour

Tumour Size	Total no. of patients (X) n = 268	No. of relapses (Y) n = 73	Percentage (Y/X x 100%)
≤ 2 cm	95	20	21.1
> 2 to 5 cm	139	39	28.1
> 5 cm	33	14	42.4
Unknown	1	0	0

5.3.3 Axillary Node Status

There was a statistically significant positive correlation between the axillary node status and relapse, $r = 0.193$ ($p = 0.002$). Patients with node positive disease had higher risk of relapse compared to those with node negative disease. This is illustrated in Table 8.

Table 8 - Number of relapse according to axillary node status

Axillary Node Status	Total no. of patients (X) n = 268	No. of relapses (Y) n = 73	Percentage (Y/X x 100%)
Node positive	134	48	35.8
Node negative	134	25	18.7

5.3.4 Grade of Tumour

Table 9 shows that high grade tumour had higher relapse rate than low grade tumor. However, correlation between grade of tumour and relapse was not statistically significant, $r = 0.123$ ($p = 0.07$).

Table 9 - Number of relapse according to tumour grade

Tumour Grade	Total no. of patients (X) n = 268	No. of relapses (Y) n = 73	Percentage (Y/X x 100%)
Grade 1	25	5	20.0
Grade 2	107	30	28.0
Grade 3	80	30	37.5
Unknown	56	8	14.3

5.3.5 Oestrogen Receptor Status

There was a relationship between oestrogen receptor status (ER) and relapse. Table 10 shows that ER negative patients had higher risk of relapse compared to ER positive patients. The correlation was found to be statistically significant, $r = 0.136$ ($p = 0.031$).

Table 10 - Number of relapse according to oestrogen receptor status

Oestrogen Receptor Status	Total no. of patients (X) n = 268	No. of relapses (Y) n = 73	Percentage (Y/X x 100%)
Positive	147	34	23.1
Negative	104	37	35.6
Unknown	17	2	11.8

5.4 Overall Survival

5.4.1 Overall survival according to disease free interval

Out of the 73 patients who relapsed, more than half (56.2%) occurred within the first 36 months of follow-up. This point was chosen to compare survival between short and long disease free interval. Patients who had short disease free interval (relapsed within 36 months of primary surgery) were shown to have lower overall survival than those who had long disease free interval (relapsed after 36 months of primary surgery). The difference in overall survival was statistically significant ($p < 0.001$). This is illustrated in Figure 2.

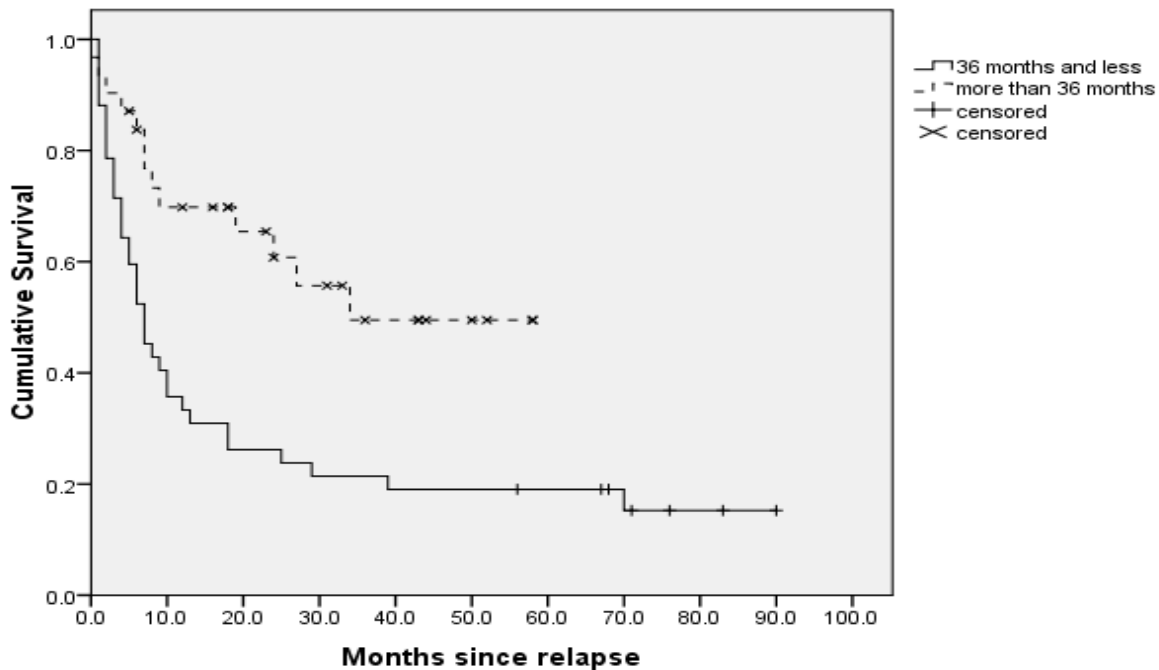


Figure 2 - Overall survival according to disease free interval.

5.4.2 Overall survival according to sites of relapse

Figure 3 demonstrates that patients with local relapse had a better prognosis than patients who developed regional or distant relapse. The 5-year overall survival for patients with local relapse as the first relapse was 61%. However, when the relapse involved regional nodes or distant sites, the 5-year overall survival dropped to 40% and 21%, respectively. The differences are statistically significant ($p < 0.01$).

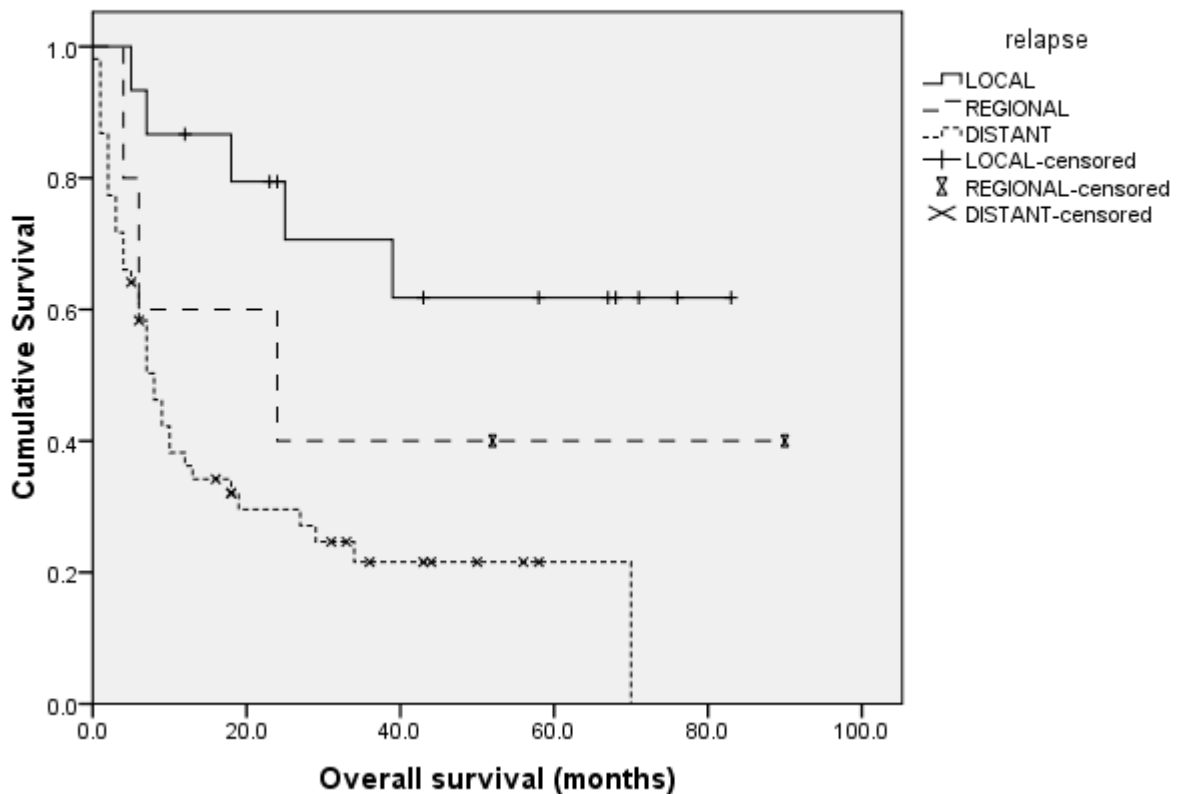


Figure 3 - Overall survival according to sites of relapse.

5.4.3 Overall survival according to sites of distant relapse

As illustrated in Figure 4, the 2-year overall survival for patients with bone metastasis was 61% and those with lung metastasis was 20%. None of the patients with liver or brain metastasis was alive at 2 years. Those patients with relapse at other sites had 2-year overall survival of 50%.

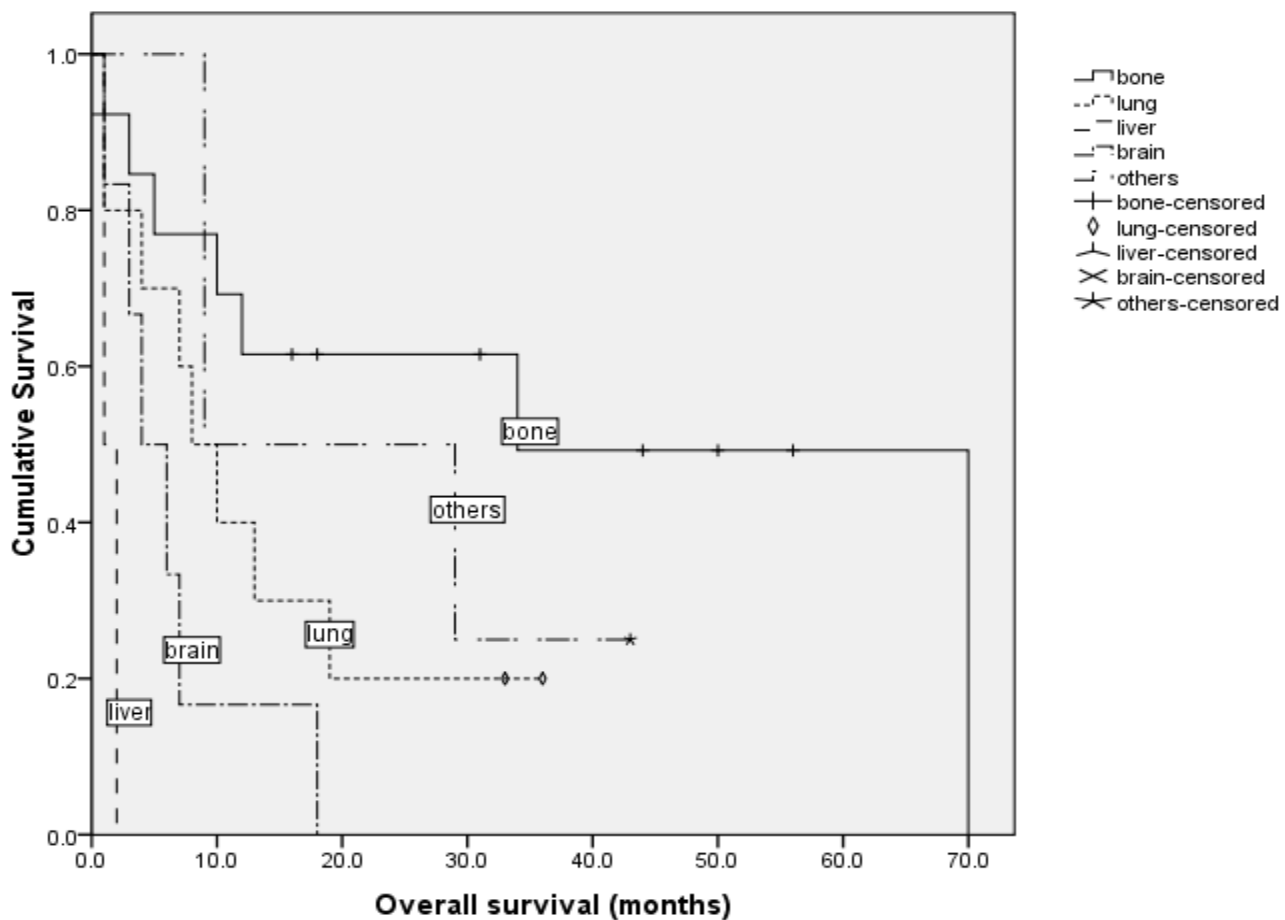


Figure 4 - Overall survival according to sites of distant relapse.

Note: Analysis was done on patients with only one site of distant relapse.