

# Musculoskeletal Events in Older Patients Receiving Adjuvant Chemotherapy for Breast Cancer (Alliance A171302)

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# CALGB 49907

- ◆ Randomized prospective controlled trial of women 65 years and older undergoing adjuvant therapy for breast cancer with AC or CMF vs Capecitabine

# Purpose

- ◆ Musculoskeletal events (MEs) resulting from breast cancer surgery can significantly interfere with the quality of life of older adults. We evaluated the incidence of MEs in women 65 years and older undergoing adjuvant therapy for breast cancer, and the impact of breast cancer treatment on those MEs.

# Patients and Methods

- ◆ For patients enrolled in CALGB 49907, we prospectively collected patient-reported data using the EORTC QLQ BR-23 and physician-reported adverse events (AEs) to characterize self-reported MEs and the incidence of lymphedema, respectively.

# Patients and Methods

- ◆ Six of the EORTC QLQ BR-23 items were analyzed in this study: 1) pain in the arm/shoulder, 2) arm/hand swelling, 3) difficulty in raising arm or moving it sideways, 4) breast pain in the affected breast, 5) breast swelling in the affected breast, and 6) oversensitivity in the affected breast. Chi-square tests were used to determine if these events were associated with baseline characteristics.

**Table 1: Baseline Post-operative Patient Characteristics**

	All Patients N=612	Patients with QOL data N=321
Age		
Mean (SD)	72.4 (4.7)	72.0 (4.8)
Age 65-69	217 (35.4%)	129 (40.2%)
Age 70-79	370 (60.4%)	179 (55.8%)
Age 80+	25 (4.1%)	13 (4.1%)
Gender		
Female	612 (100%)	321 (100%)
Race	N=609	N=320
White	521 (85.6%)	278 (86.9%)
Black	69 (11.3%)	35 (10.9%)
Other	19 (3.1%)	7 (2.2%)
Most Extensive Surgery	N=607	N=319
Breast Conservation Surgery	277 (45.6%)	143 (44.8%)
Mastectomy	330 (54.4%)	176 (55.2%)
Axillary Dissection	N=609	N=321
Yes	477 (78.3%)	256 (79.8%)
No	132 (21.7%)	65 (20.2%)
Radiation	N=559	N=300
Yes	312 (55.8%)	161 (53.7%)
No	247 (44.2%)	139 (46.3%)
Chemotherapy Type	N=604	N=321
AC	175 (29.0%)	99 (30.8%)
CMF	128 (21.2%)	67 (20.9%)
Capecitabine	301 (49.8%)	155 (48.3%)

## Table 2: Patient Reported musculoskeletal events Over Time

Number of Patient Reported MEs experienced	Post Operative (N=321)	12 Months (N=259)	24 Months (N=239)
0	43 (13.4%)	72 (27.8%)	86 (36.0%)
1	31 (9.7%)	38 (14.7%)	40 (16.7%)
2	50 (15.6%)	58 (22.4%)	45 (18.8%)
3	68 (21.2%)	34 (13.1%)	39 (16.3%)
4	52 (16.2%)	30 (11.6%)	13 (5.4%)
5	44 (13.7%)	20 (7.7%)	12 (5.0%)
6	33 (10.3%)	7 (2.7%)	4 (1.7%)

**Table 3: Maximum grade of physician-reported lymphedema during the 24-month reporting period.**

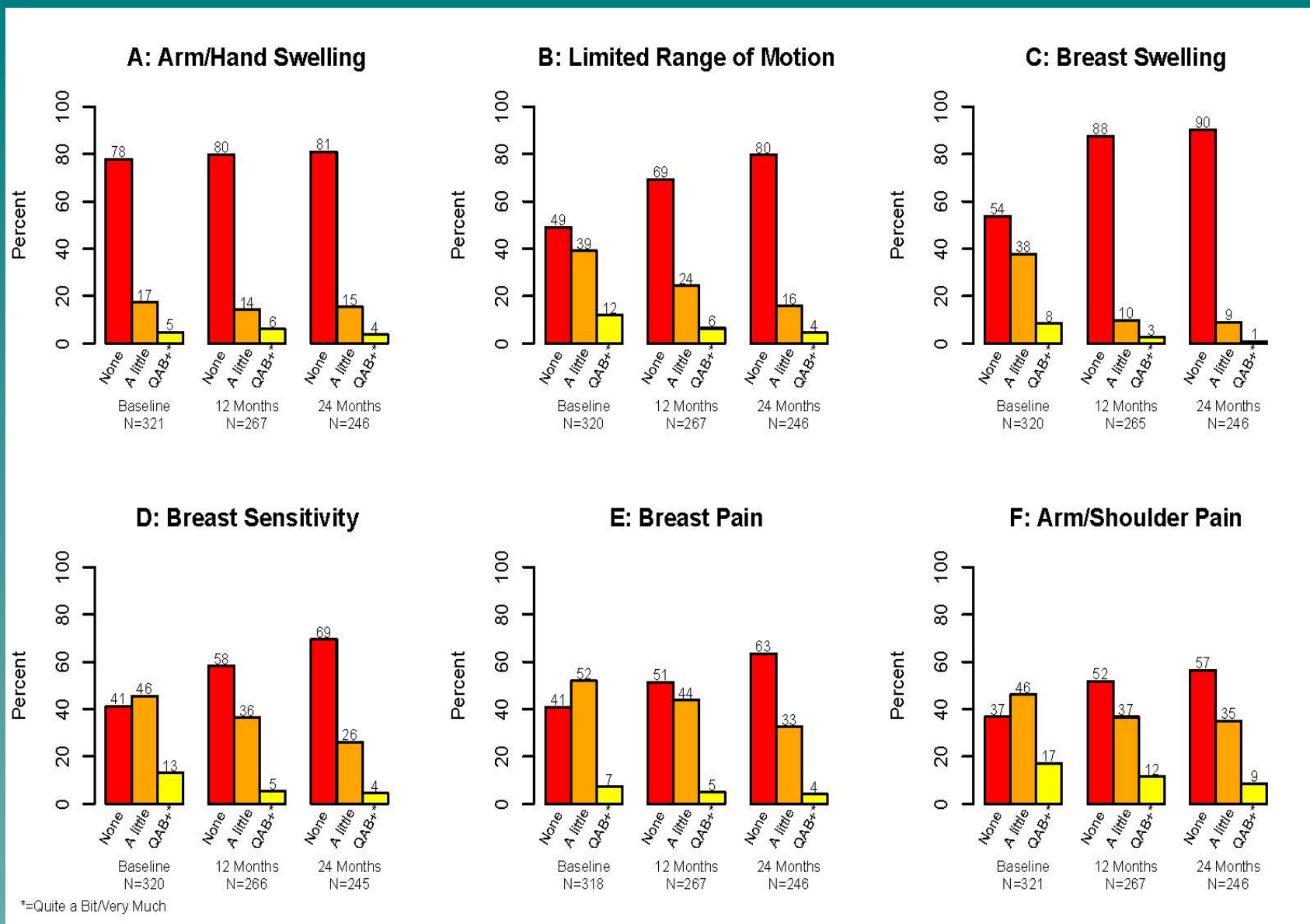
	Lymphedema Severity					p-value (any)	p-value (grade 3+)
	None	Grade 1	Grade 2	Grade 3			
For all patients (N=612)	570 (93.1%)	33 (5.4%)	9 (1.5%)	0 (0%)			
Vs treatment arm (N=321)					0.007	NA	
CMF (N=67)	56 (83.6%)	9 (13.4%)	2 (3.0%)	0 (0%)			
AC (N=99)	95 (96.0%)	4 (4.0%)	0 (0%)	0 (0%)			
Capecitabine (N=301)	146 (94.2%)	7 (4.5%)	2 (1.3%)	0 (0%)			
Vs Most Extensive Surgery (N=319)					0.453	NA	
Breast Conserving Surgery (N=143)	134 (93.7%)	8 (5.6%)	1 (0.7%)	0 (0%)			
Full Mastectomy (N=176)	161 (91.5%)	12 (6.8%)	3 (1.7%)	0 (0%)			
Vs Axillary Dissection (N=321)					0.042	NA	
No (N=65)	64 (98.5%)	1 (1.5%)	0 (0%)	0 (0%)			
Yes (N=256)	233 (91.2%)	19 (7.4%)	4 (1.6%)	0 (0%)			
Vs Irradiation (N=300)					0.308	NA	
No (N=139)	126 (90.7%)	11 (7.9%)	2 (1.4%)	0 (0%)			
Yes (N=161)	151 (93.8%)	9 (5.6%)	1 (0.6%)	0 (0%)			
Vs Number of Nodes Examined (N=314)					0.023	NA	
0-3 (N=49)	47 (95.9%)	2 (4.1%)	0 (0%)	0 (0%)			
4-7 (N=53)	53 (100%)	0 (1.1%)	0 (0%)	0 (0%)			
8+ (N=212)	190 (89.6%)	18 (8.5%)	4 (1.9%)	0 (0%)			



Table 4: Lymphedema reported as an adverse event vs patient reported swelling of arm and hand.

Time Frame (Patient Reported)	Lymphedema (AE)		p-value
	Yes	No	
Arm/Hand Swelling at Post-operative (N=321)			<0.001
Yes	13 (18.3%)	58 (81.7%)	
No	11 (4.4%)	239 (95.6%)	
Arm/Hand Swelling at <1 Month after Chemo (N=281)			<0.001
Yes	15 (22.1%)	53 (77.9%)	
No	7 (3.3%)	206 (96.7%)	
Arm/Hand Swelling at 12 mos. Post Op (N=259)			0.003
Yes	10 (18.5%)	44 (81.5%)	
No	12 (5.9%)	193 (94.2%)	
Arm/Hand Swelling at 24 mos. Post Op (N=240)			<0.001
Yes	10 (21.3%)	37 (78.7%)	
No	6 (3.1%)	187 (96.9%)	

Figure 1



# Results

- ◆ Lymphedema AE data were available for 612 patients and 321 patients provided self-reported MEs data.
- ◆ Paper compares the lymphedema incidence in the 321 patients for which we have QOL data.
- ◆ One or more MEs were reported by 87% post-operatively and 48% at 24 months.

# Results

- ◆ At 24 months 10% had one or more MEs and 1% had 6 MEs.
- ◆ The median number of MEs was 3 post-operatively and 0 at 24 months.
- ◆ Seventy-four percent experienced at least  $\geq 3/6$  types of MEs over the 24 month period.

# Results

- ◆ Lymphedema was noted in 6.1% at any time and appeared to be associated with type of chemotherapy given: CMF 11.7%, capecitabine 7.7% and AC 2.3%.
- ◆ Mastectomy and axillary node dissection were associated with the most events.
- ◆ LROM correlated with function at all time periods.

# Conclusion

- ◆ Mastectomy and axillary node dissection were associated with increased musculoskeletal events in this group of older patients.
- ◆ These MEs significantly affected function and improved over time, and lumpectomy and SLN biopsy resulted in less MEs.

