

Age difference in pain and patient reported outcomes: a secondary analysis of the NCIC CTG SC.23 randomized trial

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Objective Methods Conclusions

• Explore the age difference in pain and patient reported outcomes in cancer patients with bone metastases undergoing palliative radiotherapy

• Patients at least 18 years of age and receiving a single 8Gy dose of radiation for bone metastases at one or two locations were enrolled in a double-blind, placebo controlled study across 23 Canadian cancer centres

• Within 7 days before treatment, and at 10 and 42 days after treatment, patients completed the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Bone Metastases Module (QLQ-BM22) and the EORTC Quality of Life Core-15-Palliative (QLQ-C15-PAL) and Dexamethasone Symptom Questionnaire (DSQ)

• Comparisons of patient demographics, performance status, analgesic consumption, BM22 and C15 were compared between the two age cohorts (above 75 years old and under 75 years old)

• Subgroup analysis was conducted between responders and non-responders

• There appears no significant difference in general with age in response to radiation and patient reported outcomes

• Palliative radiotherapy should be offered to elderly patients when needed

Results

- A total of 298 patients (170 male, 128 females) were in the study, of whom 209 (70%) were less than 75 years old; most common primary cancer sites included lung, prostate and breast
- Younger patients had better performance status and consumed more analgesic at baseline, in addition to worse scores in nausea, insomnia and functional interference
- There was no significant differences in response to radiation or incidence of radiation induced pain flare between ages
- There were no differences in change in scores between younger and older patients for any scales (BM22, C15-PAL, DSQ)
- Responders to radiation reported better improvement in physical and emotional domains when compared with non-responders

Patient demographics and baseline characteristics				
Years	Age <75	Age ≥75	Total	p-value
	N (%)	N (%)	N (%)	
Gender				0.06
Female	97 (46.4)	31 (34.8)	128 (43.0)	
Male	112 (53.6)	58 (65.2)	170 (57.0)	
Baseline worst pain score				0.11
WPS 1-5	70 (33.5)	38 (42.7)	108 (36.2)	
WPS 6	20 (9.6)	12 (13.5)	32 (10.7)	
WPS 7-10	119 (56.9)	39 (43.8)	158 (53.0)	
Karnofsky performance status				0.02
40-60	39 (18.7)	29 (32.6)	68 (22.8)	
70-80	119 (56.9)	46 (51.7)	165 (55.4)	
90-100	51 (24.4)	14 (15.7)	65 (21.8)	
First palliative radiotherapy treatment site				0.71
Vertebrae	75 (35.9)	28 (31.5)	103 (34.6)	
Pelvis/Hips	62 (29.7)	30 (33.7)	92 (30.9)	
Others	72 (34.4)	31 (34.8)	103 (34.6)	
Primary cancer site				0.001
Lung	63 (30.1)	21 (23.6)	84 (28.2)	
Prostate	38 (18.2)	36 (40.4)	74 (24.8)	
Breast	50 (23.9)	16 (18.0)	66 (22.1)	
Other	58 (27.8)	16 (18.0)	74 (24.8)	
Baseline total daily OME (mg)				0.0004
n	206	84	290	
Mean (SD)	106.9 (309.6)	26.98 (44.4)	83.75 (264.4)	
Median (Range)	30 (0,3750)	12 (0, 270)	20 (0, 3750)	
Total N	209	89	298	
Response to radiotherapy				
	Age <75	Age ≥75	All	p-value
	N (%)	N (%)	N (%)	
Response to radiotherapy				p=0.26
Responder (CR + PR)	77 (36.8)	39 (43.8)	116 (38.9)	
CR	37 (17.7)	24 (27.0)	61 (20.5)	
PR	40 (19.1)	15 (16.9)	55 (18.5)	
Non-responder (PD + SD + IN + NR)	132 (63.2)	50 (56.2)	182 (61.1)	
PD	27 (12.9)	6 (6.7)	33 (11.1)	
SD	53 (25.4)	20 (22.5)	73 (24.5)	
IN	49 (23.4)	22 (24.7)	71 (23.8)	
NR	3 (1.4)	2 (2.2)	5 (1.7)	
Pain flare: 0-10 days				p=0.34
No	141 (67.5)	65 (73.0)	206 (69.1)	
Yes	68 (32.5)	24 (27.0)	92 (30.9)	
Pain flare: 0-5 days				p=0.12
No	151 (72.2)	72 (80.9)	223 (74.8)	
Yes	58 (27.8)	17 (19.1)	75 (25.2)	
Pain flare: 6-10 days				p=0.64
No	169 (80.9)	74 (83.1)	243 (81.5)	
Yes	40 (19.1)	15 (16.9)	55 (18.5)	

Baseline QOL scores							
Domain	Age <75	Age ≥75	p-value				
	N	Mean	SD	N	Mean	SD	
QLQ-BM22							
Painful sites	202	36.3	18.1	80	33.0	17.1	0.17
Painful characteristics	202	46.2	22.5	80	44.9	21.3	0.66
Functional interference	202	47.2	22.5	80	55.7	22.5	0.005
Psychosocial aspects	202	48.8	19.3	80	53.7	20.3	0.06
QLQ-C15-PAL							
Domain	Age <75	Age ≥75	p-value				
	N	Mean	SD	N	Mean	SD	
Physical	202	75.1	23.7	80	68.6	28.2	0.05
Emotional	201	68.5	26.1	80	70.2	28.2	0.63
Global QOL	200	48.2	23.2	79	48.5	23.5	0.91
Pain	201	64.1	25.7	78	62.4	27.5	0.63
Fatigue	202	46.0	27.1	78	48.1	28.8	0.58
Nausea and vomiting	202	21.3	30.4	79	11.8	20.7	0.01
Dyspnea	201	24.9	28.3	80	22.1	29.5	0.46
Insomnia	202	39.9	33.4	80	29.6	28.6	0.02
Appetite	202	33.3	34.6	80	36.7	39.2	0.48
Constipation	200	31.3	33.4	80	38.3	38.7	0.13
Comparing change in QOL in elderly responders and non-responders							
QLQ-BM22	Responder	Non-responder	p-value				
Domain	N	Mean	SD	N	Mean	SD	
Painful sites	70	-15.8	16.7	76	-2.5	21.5	0.0001
Painful characteristics	70	-23.7	22.7	76	-8.3	29.0	0.001
Functional interference	70	20.1	19.9	76	8.9	24.3	0.003
Psychosocial aspects	70	7.5	17.7	76	1.1	20.1	0.04
QLQ-C15-PAL	Responder	Non-responder	p-value				
Domain	N	Mean	SD	N	Mean	SD	
Physical	70	4.9	21.5	76	-10.1	26.1	0.0002
Emotional	70	11.4	24.0	76	-2.6	31.4	0.003
Global QOL	68	12.8	23.8	76	-3.1	24.5	0.0001
Pain	70	-29.5	28.4	75	-9.8	29.7	0.0001
Fatigue	70	-7.4	23.9	76	9.7	26.8	0.0001
Nausea and vomiting	70	-2.9	27.1	76	3.5	37.2	0.24
Dyspnea	70	-2.4	24.3	75	4.4	27.0	0.11
Insomnia	70	-16.7	35.8	76	-1.3	31.9	0.01
Appetite	70	-3.8	30.9	76	7.9	46.2	0.08
Constipation	70	-7.1	30.0	74	5.9	32.3	0.01
DSQ	Responder	Non-responder	p-value				
Domain	N	Mean	SD	N	Mean	SD	
Reflux	69	-1.9	29.1	75	0.9	37.2	0.61
Insomnia	69	-16.9	31.1	75	1.8	35.0	0.001
Agitation	69	-8.7	25.3	75	1.3	31.7	0.04
Increased appetite	69	8.2	29.9	74	0.0	27.6	0.09
Weight gain	69	2.9	26.0	75	0.0	23.9	0.49
Acne	68	-0.5	16.8	75	1.3	18.5	0.54
Hiccups	69	1.0	22.9	75	-0.4	20.9	0.70
Oral candida	69	4.4	22.1	74	7.7	19.5	0.34
Depression*	19	0.0	29.4	16	-2.1	8.3	0.79

Baseline QOL scores							
Domain	Age <75	Age ≥75	p-value				
	N	Mean	SD	N	Mean	SD	
Reflux	200	19.8	26.3	80	15.8	24.3	0.24
Insomnia	199	35.9	33.8	80	24.6	31.3	0.01
Agitation	198	31.8	29.5	80	26.7	29.2	0.19
Increased appetite	199	10.6	20.5	80	5.8	17.4	0.07
Weight gain	200	8.2	19.1	80	5.8	15.7	0.33
Acne	200	3.3	12.1	80	2.1	9.7	0.41
Hiccups	198	8.1	19.4	80	5.4	17.9	0.29
Oral candida	200	2.0	11.4	79	1.3	8.3	0.60
Depression*	46	5.1	18.6	19	3.5	10.5	0.73
Change in QOL between baseline and day 42 after palliative radiotherapy							
QLQ-BM22	Age <75	Age ≥75	p-value				
Domain	N	Mean	SD	N	Mean	SD	
Painful sites	146	-8.9	20.4	58	-7.4	18.5	0.64
Painful characteristics	146	-15.6	27.2	58	-14.9	25.4	0.87
Functional interference	146	14.3	22.9	58	12.9	23.2	0.69
Psychosocial aspects	146	4.2	19.2	58	3.2	21.9	0.77
QLQ-C15-PAL	Age <75	Age ≥75	p-value				
Domain	N	Mean	SD	N	Mean	SD	
Physical	146	-2.9	25.1	57	2.9	24.3	0.14
Emotional	146	4.1	28.9	58	3.5	31.7	0.89
Global QOL	144	4.4	25.3	58	2.0	23.8	0.54
Pain	145	-19.3	30.6	55	-21.5	34.7	0.66
Fatigue	146	1.5	26.8	56	-1.5	29.5	0.49
Nausea and vomiting	146	0.5	32.8	58	3.5	22.2	0.52
Dyspnea	145	1.2	25.9	58	0.6	22.9	0.88
Insomnia	146	-8.7	34.6	57	-0.6	29.9	0.12
Appetite	146	2.3	39.9	58	0.6	38.2	0.78
Constipation	144	-0.5	31.8	58	-5.8	39.1	0.32
DSQ	Age <75	Age ≥75	p-value				
Domain	N	Mean	SD	N	Mean	SD	
Reflux	144	-0.5	33.5	58	-1.7	32.7	0.81
Insomnia	144	-7.2	34.4	57	2.3	33.3	0.08
Agitation	144	-3.5	29.2	58	-0.6	28.3	0.52
Increased appetite	143	4.0	28.9	57	5.3	28.0	0.77
Weight gain	144	1.4	24.9	57	0.6	21.4	0.83
Acne	143	0.5	17.7	57	1.2	15.4	0.79
Hiccups	144	0.2	21.8	58	1.7	22.9	0.66
Oral candida	143	6.1	20.8	55	1.8	10.0	0.15
Depression*	35	-1.0	22.1	11	0.0	14.9	0.89

CR: complete response, PR: partial response, PD: progressive pain, SD: stable pain, IN: indeterminate response (unevaluable), NR: no-responder (not CR or PR but uncertain if PD or SD).

* This question asked if patients felt depressed on discontinuing their medication. There was a field that they could check off to indicate it was not applicable for the baseline questionnaire.

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