TABLE 128 Other solid tumour adverse events

Study	CSR Henry		Arican 1999[90]		Berenson 2001[91]			Body 2010[164]	Brown 2007[92]		O'Rourke 95[96]		Rosen 2003, 2004[130,133]		[a]Tralongo 2004[158]	[a]Zuradelli 2009[161]
Tumour types	All, including MM, excluding breast and prostate		All		Breast and MM			All	All		All		All, excluding breast and prostate		Breast, prostate and MM	All
Intervention	D	Z	C	CL	Z	P	VB	D*	PL	C	PL	C	Z	PL	P	Z
Time (years)	0.8	0.8	0.25	0.25	0.83	0.83	1.10	1.10	0.12	0.12	0.08	0.08	1.75	1.75	1.58	NR
Number	878	878	17	17	66	73	78	284	24	25	21	19	254	247	22	240
Adverse event	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***	**n *(%)***
Abdominal pain	20 (2.3)	17 (1.9)			10 (15.2)	13 (17.8)										
Anaemia	31 (3.5)	66 (7.5)			16 (24.2)	15 (20.5)	10 (12.8)	40 (14.1)					97 (38.2)	86 (34.8)		
Anorexia	9 (1.0)	8 (0.9)			18 (27.3)	8 (11.0)							62 (24.4)	66 (26.7)		
Arthralgia					15 (22.7)	12 (16.4)	14 (17.9)	30 (10.6)					37 (14.6)	42 (17.0)		
Asthenia	25 (2.8)	17 (1.9)					19 (24.4)	49 (17.3)					74 (29.1)	70 (28.3)		
Cachexia	4 (0.5)	12 (1.4)														
Cardiac failure	12 (1.4)	6 (0.7)														
Confusional state	5 (0.6)	11 (1.3)	1 (5.9)	0												
Constipation	4 (0.5)	9 (1.0)			16 (24.2)	15 (20.5)	13 (16.7)	42 (14.8)					91 (35.8)	94 (38.1)		

Study	CSR Henry		Arican 1999[90]	Berenson 2001[91]			Body 2010[164]	Brown 2007[92]		O'Rourke 95[96]		Rosen 2003, 2004[130,133]		[a]Tralongo 2004[158]	[a]Zuradelli 2009[161]
Tumour types	All, including MM, excluding breast and prostate		All	Breast and MM			All	All		All		All, excluding breast and prostate		Breast, prostate and MM	All
Cough				15 (22.7)	19 (26.0)	11 (14.1)	23 (8.1)					52 (20.5)	43 (17.4)		
Dehydration	36 (4.1)	41 (4.7)										43 (16.9)	43 (17.4)		
Diarrhoea	16 (1.8)	13 (1.5)		18 (27.3)	18 (24.7)	11 (14.1)	45 (15.8)	6 (25.0)	8 (32.0)	1 (4.8)	3 (15.8)	44 (17.3)	47 (19.0)	3 (13.6)	
Dyspepsia				14 (21.2)	12 (16.4)			1 (4.2)	2 (8.0)						
Dyspnoea	62 (7.1)	66 (7.5)		18 (27.3)	12 (16.4)	9 (11.5)	19 (6.7)					90 (35.4)	74 (30.0)		
Fatigue	11 (1.3)	6 (0.7)		27 (40.9)	24 (32.9)	9 (11.5)	36 (12.7)					82 (32.3)	74 (30.0)		
Febrile neutropenia	24 (2.7)	36 (4.1)													
General physical health deterioration	26 (3.0)	40 (4.6)													
Headache				21 (31.8)	21 (28.8)	9 (11.5)	33 (11.6)					43 (16.9)	27 (10.9)		
Insomnia				9 (13.6)	12 (16.4)							44 (17.3)	34 (13.8)		
Intestinal obstruction	10 (1.1)	5 (0.6)													
Musculoskeletal pain	6 (0.7)	7 (0.8)										30 (11.8)	32 (13.0)		

continued

TABLE 128 Other solid tumour adverse events (*continued*)

Study	CSR Henry		Arican 1999[90]	Berenson 2001[91]			Body 2010[164]	Brown 2007[92]		O'Rourke 95[96]		Rosen 2003, 2004[130,133]		[a]Tralongo 2004[158]	[a]Zuradelli 2009[161]
Tumour types	All, including MM, excluding breast and prostate		All	Breast and MM			All	All		All		All, excluding breast and prostate		Breast, prostate and MM	All
Nausea	16 (1.8)	20 (2.3)		26 (39.4)	37 (50.7)	17 (21.8)	64 (22.5)	7 (29.2)	6 (24.0)	6 (28.6)	3 (15.8)	124 (48.8)	90 (36.4)	3 (13.6)	2 (0.8)
Oedema, peripheral	5 (0.6)	8 (0.9)		8 (12.1)	10 (13.7)	7 (9.0)	25 (8.8)					60 (23.6)	52 (21.1)		
Paraesthesia						7 (9.0)	21 (7.4)								
Pleural effusion	39 (4.4)	39 (4.4)													
Pneumonia	64 (7.3)	52 (5.9)													
Pulmonary embolism	19 (2.2)	19 (2.2)													
Pyrexia	27 (3.1)	23 (2.6)		17 (25.8)	14 (19.2)	10 (12.8)	25 (8.8)					69 (27.2)	58 (23.5)	5 (22.7)	23 (3.6)
Respiratory tract infection	4 (0.5)	10 (1.1)													
Thrombocytopenia	20 (2.3)	26 (3.0)													
Urinary tract infection	10 (1.1)	10 (1.1)		6 (9.1)	11 (15.1)										
Vomiting	21 (2.4)	31 (3.5)		24 (36.4)	25 (34.2)	14 (17.9)	43 (15.1)	3 (12.5)	6 (24.0)			96 (37.8)	75 (30.4)		4 (1.7)

C, clodronate 1.6 g; CL, control; D, denosumab 120 mg 4-weekly; D**, denosumab 30 mg/120 mg/180 mg; MM, multiple myeloma; NR, not reported; P, disodium pamidronate 90 mg 4-weekly; PL, placebo; VB, various BPs; Z, zoledronic acid 4 mg 4-weekly.

a Observational study.

TABLE 129 Other solid tumour adverse events

Study	Intervention	Time (years)	Number analyses	Tumour types	Adverse event			
					ONJ	Renal toxicity	Hypercalcaemia	Hypocalcaemia
CSR Henry (includes MM)	D	0.8	878	All excluding breast and prostate	10 (1.1)	22 (2.5)	3 (0.3)	22 (2.5)
	Z	0.8	878		11 (1.3)	36 (4.1)	3 (0.3)	8 (0.9)
CSR Henry (excludes MM)	D	0.8	878	All excluding breast and prostate	3 (0.3)	11 (1.3)	3 (0.3)	12 (1.4)
	Z	0.8	878		2 (0.2)	23 (2.6)	0	8 (0.9)
Arican 1999[90]	C	0.25	17	All			0	2 (11.8)
	CL	0.25	17				1 (5.9)	
Berenson 2001[91]	Z	0.83	66	Breast and MM		1 (1.5)	0	2 (3.0)
	P	0.83	73			2 (2.7)	2 (2.7)	1 (1.4)
Body 2010[164]	Various BPs	1.096	78	All	0	0		
	Denosumab (30/120/180)	1.096	284		0	0		
O'Rourke 1995[96]	PL	0.077	21	All			2 (9.5)	0
	C	0.077	19				0	0
Robertson 1995[98]	C	0.153	27	All			0	2 (7.4)
	PL	0.156	28				7 (25.0)	0
Rosen 2003, 2004[130,133]	Z	1.75	254	All, excluding breast and prostate		5 (2.0)	0	
	PL	1.75	247			5 (2.0)	9 (3.6)	
Pandey 2009[153]	Z	1.5	120	All	0			10 (8.3)
	I	1.5	120		0			3 (2.5)
[a]Estilo 2008[142]	P or Z	1.46	310	Breast, prostate and MM	28 (9.0)			
[a]Francini 2011[143]	Z	1.57	59	Breast and lung	0			

continued

TABLE 129 Other solid tumour adverse events (*continued*)

Study	Intervention	Time (years)	Number analyses	Tumour types	Adverse event			
					ONJ	Renal toxicity	Hypercalcaemia	Hypocalcaemia
[a]Haidar 2009[146]	Various BPs	1.17	53	Prostate and renal	2 (3.8)			
[a]Hoff 2008[147]	Z and/or P	1.77	3994	All	29 (0.7)			
[a]Ibrahim 2008[149]	Various BPs	0.9	539	All	8 (1.5)			
[a]La Verde 2008[151]	Z and P	NR	186	All	16 (8.6)			
[a]Stumpe 2009[157]	Various IV bisphosphonates	0.76	638	All	6 (0.9)			
[a]Vahtsevanos 2009[159]	Various BPs	1.7	1621	All	80 (4.9)			
[a]Anguiar Bunjanda 2007[136]	Z	1.83	67	All	9 (13.4)	0		
[a]Bonomi 2010[137]	Various BPs	2	398	All	10 (2.5)	16 (4.0)		
[a]McDermott 2006[61]	Z	2.08	466	All		42 (9.0)		
[a]Ripamonti 2009[155]	Various BPs	0.8	966	All		28 (2.9)		
[a]Shah 2011[156]	Z	NR	220 (184 normal RF and 36 abnormal)	All		45 (20.5)		
[a]Diel 2009[141]	I	0.91	109	All		14 (12.8)		
	Z	1.36	256			48 (18.8)		
[a]Chennuru 2008[138]	Z	2	120	All				10 (8.3)
[a]Guarneri 2005[145]	Z and/or P	2.83	57	Breast, MM, prostate and renal	3 (5.3)	7 (12.3)	1 (1.8)	
[a]Tralongo 2004[158]	P	1.58	22 (all >70 years old)	Breast, prostate and MM		2 (9.1)		3 (13.6)
[a]Zuradelli 2009[161]	Z	NR	240	All	4 (1.7)	3 (1.3)	0	11 (4.6)
[a]Kotteas 2008[212]	Z	1.5	222	Lung only		0	0	

C, clodronate 1.6 mg orally each day; CL, control; D, denosumab 120 mg 4-weekly; I, ibandronate; MM, multiple myeloma; NR, not reported; P, disodium pamidronate 90 mg 4-weekly; PL, placebo; RF, renal function; Z, zoledronic acid 4 mg 4-weekly.

a Observational study.