I Study ID	II Method	III Patient characteristics	IV Intervention(s)	V Results	VII Critical appraisal of study quality
Maranzano et al, 2005	• Randomized controlled trial • Funding/CoI: no CoI declared, funding not reported • Setting: Italy • Sample size :N=300, of which 276 assessable • Duration: inclusion Feb 1998-Nov 2002. Median follow –up: 33 months (range 4 to 61 months)	• Eligibility criteria - MSCC confirmed by MRI or CT in patients with progressive neoplastic disease. - no criteria indicating a primary surgical approach - a short life expectancy (≤6 months) - provided informed consent. • A priori patient characteristics: Age range:30-89, female 31%, Karnofsky performance status: ≤40 31%, 50-70 52%, 80-100 17%; Back pain 95%, not walking 33%, abnormal sphincter control 11% • Group comparability Median age 66 vs. 68; back pain 96%vs. 94%; not walking 34% vs. 32%	• Radiotherapy: Short course (8Gyx2) n=142 • Radiotherapy: Split course (5Gy x3; 3Gy x5) n=134	**Pain** Responders : Short course RT: 80/142 (56%) Split course RT: 79/134 (59%) No significant differences between the two interventions. **Mobility** Responders: Short course RT: 97/142 (68%) Split course RT: 95/134 (71%) No significant differences between the two interventions. **Respons duration** median duration of improvement: 3.5 months for both interventions. **Neurological respons** Not reported **Toxicity** Esophagitis: Short course RT: 1/142 Split course RT: 2/134 Diarrhea grade 3: Short course RT: 2/142 Split course RT: 2/134	Risk of bias: low No selection bias: one-to-one randomization allocation by centralized registration No blinding reported Clear definitions of outcome Drop outs: 24 (LTFU and early death balanced in both interventions)

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				No difference in toxicity between the two interventions. **Progression Free survival** Not reported **Bladder function** Responders: Short course RT: 128/142 (90%) Split course RT: 119/134 (89%) No significant differences between the two interventions.	

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Maranzano et al, 2009	• Randomized controlled trial • Source of funding: no CoI declared, funding not reported • Setting: 13 Radiation Oncology Italian Centres • Sample size: N=327, of which 303 assessable • Duration: inclusion Nov 2002-Sept 2007. Median overall survival: 4 months.	• Inclusion criteria: - MSCC confirmed by MRI or CT in patients with progressive neoplastic disease. - no criteria indicating a primary surgical approach - a short life expectancy (<_6 months) - provided informed consent. • A priori patient characteristics: Age range:33-87, female 35%, Karnofsky performance status: ≤40 15%, 50-70 60%, 80-100 25%; Back pain 89%, not walking 26%, abnormal sphincter control 14% • Group comparability Median age 67 vs. 67; back pain 89%vs. 89%; not walking 27% vs. 25%	• Radiotherapy Short course 8Gy x2 n=150 • Radiotherapy Single dose 8Gy n=153	**Pain** Responders: Short course RT: 80/150 (53%) Single dose RT: 80/153 (52%) No significant differences between the two interventions. **Mobility** Responders: Short course RT: 104/150 (69%) Single dose RT: 95/153 (62%) No significant differences between the two interventions. **Respons duration** Median duration of improvement: 5 months for both interventions **Toxicity** Esophagitis: Short course RT: 2/150 (1%) Single dose RT: 0 Diarrhea grade 1-2: Short course RT: 6 (2%) Single dose RT: 0 Vomiting grade 3: Short course: 1/150 (1%) Single dose: 0	Risk of Bias: Low Selection bias: 1:1 randomisation and allocation by centralized registration Blinding: not reported 21/321 LTFU or early death (balanced over the two interventions)

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				Neurological respons Not reported **Progression free survival** Not reported **Bladder function** Responders: Short course RT: 131/150 (87%) Single dose RT: 130/153 (85%) No significant differences between the two interventions.	
Van der Linden et al. 2005, 2004, Steenland et al. 1999	• Randomized controlled trial • Source of funding: Health Care Insurance Board; no Col reported • Setting: Netherlands • Sample size: N=342 patients with spinal metastases out of 1157 randomized patients • Duration: inclusion	• Inclusion criteria: - Max pain score during preceding week of at least 2 on a 11-point pain scale - the bone metastases: area that could be encompassed in a single radiation treatment field • A priori patient characteristics: Mean age 66 Age range:34-90, female 47%, Karnofsky performance status: ≤40 8%, 50-70 44%, 80-100 48%; • Group comparability No data	• Radiotherapy: 8Gy n= 164 • Radiotherapy 4Gy x6 n=178	**Pain** No differences in respons between the two interventions (p=0.52); overall 73% responders **Mobility** Not reported **Respons duration** Not reported **Toxicity** Reported, but no comparison made	Risk of bias: High Selection bias: no clear description randomisation process, non-randomized compared to randomized patients: no difference. Blinding: not

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	March 1996 – Sept 1998			**Neurological respons** Not reported **Progression Free survival** Not reported **Bladder function** Not reported	reported LTFU # not reported
Rades et al 2004	• Prospective cohort study • Source of funding: no CoI or funding reported • Setting: multicentre • Sample size: N=214 • Duration: April 2000-sept 2003. Follow up 6 months.	• Inclusion criteria: -motor dysfunction of the lower extremities - no previous surgery or RT of the spinal cord concerned, no chemotherapy and dexamethasone treatment during RT - diagnosis of MSCC confirmed by MRI or CT • A priori patient characteristics: Median age: 63 (range 24-87); female: 49% • Group comparability Median Age: 64 vs 62; female: 45% vs.52%; ambulatory before RT: 53% vs. 56%	• Radiotherapy: 30 Gy 10 x in 2 weeks n=110 • Radiotherapy 40 Gy 20x in 4 weeks n=104	**Pain** Not reported **Mobility** **-** Ambulatory directly after RT (p=0.708) 30 Gy/10 fr 66/110 (60%) 40 Gy/20 fr 67/104 (64%) **-** Ambulatory 3 mos after RT (p=0.791) 30 Gy/10 fr 63/93 (68%) 40 Gy/20 fr 65/91 (71%) **-** Ambulatory 6 mos after RT(p=0.777) 30 Gy/10 fr 57/76 (75%) 40 Gy/20 fr 57/72 (79%) Motor function is described at Neurological respons. **Respons duration** Not reported **Neurological respons**	Risk of bias: low Prospective inclusion No blinding reported Confounders taken into account Clear definitions of outcomes Drop outs: 3/214 LTFU

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				- Motor function directly after RT **(**p=0.799) improvement 30 Gy/10 fr 47/110 (43%) 40 Gy/20 fr 43/104 (41%) No change 30 Gy/10 fr 33/110 (30%) 40 Gy/20 fr 37/104 (36%) **-** Motor function 3 mos after RT (p= 0.580**)** improvement 30 Gy/10 fr 46/93 (49%) 40 Gy/20 fr 42/91 (46%) No change 30 Gy/10 fr 26/93 (28%) 40 Gy/20 fr 33/91 (36%) **-** Motor function 6 mos after RT(p=0.928) improvement 30 Gy/10 fr 42/76 (55%) 40 Gy/20 fr 37/72 (51%) No change 30 Gy/10 fr 24/76 (32%) 40 Gy/20 fr 26/72 (36%) **Toxicity** No relevant acute or late RT-related toxicity **Progression free survival** Not reported	

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				Bladder function Not reported	
Rades et al 2005	• Retrospective cohort study • Source of funding: no CoI and no funding reported • Setting: Not reported (probably multicentre) • Sample size:N=1304 • Duration: Jan 1992-Dec 2003 follow up 6 months.	• Inclusion criteria: - motor dysfunction of the lower extremities - no surgery or RT, no concurrent chemotherapy, survival at least 1 month after RT - MSCC confirmed by MRI or CT • A priori patients characteristics: Median age: 63 (range 23-89), female: 42% • Group comparability: Age<66 47% vs49% vs 51% vs 55% vs 56% Female 36% vs 41% vs 42% vs 42% vs 46% Ambulatory before RT: 65% vs 63% vs 57% vs 61% vs 70%	• Radiotherapy 1x 8 Gy in 1 day n=261 • Radiotherapy 5x 4Gy in 1 week n=279 • Radiotherapy 10x 3 Gy n=274 • Radiotherapy 15x 2.5 Gy n=233 • Radiotherapy 20x 2Gy n=257	**Pain** Not reported **Mobility** Regain walking ability: 1x 8Gy 23/91 (25%) 5x 4Gy 27/104 (26%) 10x 3Gy 31/118 (26%) 15x 2.5Gy 22/90 (24%) 20x 2Gy 23/76 (30%) P=0.96 Motor function is described at Neurological respons. **Respons duration** In-field recurrences: 1x 8Gy 34/91 (37%) 5x 4Gy 33/104 (32%) 10x 3Gy 12/118 (10%) 15x 2.5Gy 10/90 (11%) 20x 2Gy 12/76 (16%) Significantly more recurrences after 1x 8Gy and 5x 4Gy compared to 10x 3Gy, 15x 2.5Gy and 20x 2Gy (P<.001). **Neurological respons**	Risk of bias: high Retrospective data collection, not all relevant data available. No blinding reported Drop outs: no reported/ not taken into analysis?

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				No significant difference between the five groups regarding improvement, no change and deterioration of motor function (no quantitative data provided, only available in figure) **Toxicity** No relevant acute and late RT-related toxicity **Progression Free survival** Not reported **Bladder function** Not reported	
Rades et al 2009	• Prospective cohort study • Source of funding: no CoI or funding reported • Setting: The Netherlands and Germany • Sample size: N=231 • Duration: Inclusion Jan 2006 – aug 2007. Median follow up: 12 months (range 2-	• Inclusion criteria: - MESCC (confirmed by MRI) of the thoracic or lumbar spine, no previous surgery or RT • A priori patients characteristics: Not reported • Group comparability: Age <=66: 46% vs 53%; female: 32% vs 36%; ambulatory before RT: 39% vs 42%.	• Radiotherapy Short course: 8 Gy in 1 day, 5x 4 Gy in 1week n=114 • Radiotherapy Long course: 10x 3Gy in 2weeks 15x 25Gy in 3 weeks 20x 2Gy in4 weeks n=117	**Pain** Not reported **Mobility** Motor function is described at Neurological respons. **Respons duration** MSCC recurrence after RT: Short course: 20/114 (18%) median 5 mos. Long course: 10/117 (9%) median 7.5 mos. Improved local control, defined	Risk of bias: High Selection bias: prospective inclusion, one cohort Netherlands, one cohort Germany No blinding reported

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	20 months)			as a lack of local recurrence of MSCC within the irradiated spinal area after RT, significantly associated with long course RT at 12 months: Short course: 62 /102 (61%) Long course: 84 /109 (77%) RR=1.49 (95% CI 1.03-2.24) (p=0.035). **Neurological respons** Better motor function Short course 32/114 (28%) Long course 35/117 (30%) No change in motor function Short course 70/114 (61%) Long course 72/117 (62%) No difference between two interventions (multivariate analysis: p=0.61) **Toxicity** Acute toxicity was mild or absent in all patients. Late radiation toxicity such as myelopathy did not occur. **Progression free survival** Progression free survival rate (%) at 6 months: Short course: 67	Confounders taken into account Clear definitions of outcomes Drop outs: 2/231 LTFU

I Study ID	II Method	III Patient characteristics	IV Intervention(s)	V Results	VII Critical appraisal of study quality
				Long course: 86 Progression free survival rate (%) at 12 months: Short course: 55 Long course: 72 Significantly better progression free survival at 12 months after long-course than after short course RT RR=1.33 (95% CI 1.01-1.79) (p=0.046). **Bladder function** Not reported	

Abbreviations: CoI: conflict of interest; RT=radiotherapy; MSCC= Metastatic Spinal Cord Compression;
MRI= Magnetic resonance imaging; CT= computed tomography; PFS=Progression Free Survival;
LTFU=lost to follow up; mos= month; fr= fractions; Gy=Grays