

Quality of life outcomes after primary treatment for clinically localised prostate cancer: A systematic review

LARDAS, Michael, LIEW, Matthew, VAN DEN BERGH, Roderick C., DE SANTIS, Maria, BELLMUNT, Joaquim, VAN DEN BROECK, Thomas, CORNFORD, Philip, CUMBERBATCH, Marcus G., FOSSATI, Nicola, GROSA, Tobias, HENRY, Ann M., BOLLA, Michel, BRIERS, Erik, JONIAU, Steven, LAM, Thomas B., MASON, Malcolm D., MOTTET, Nicolas, VAN DER POEL, Henk G., ROUVIÈRE, Olivier, SCHOOTS, Ivo G., WIEGEL, Thomas, WILLEMSE, Peter-Paul M., YUAN, Cathy Yuhong and BOURKE, Liam
<<http://orcid.org/0000-0002-6548-4603>>

Available from Sheffield Hallam University Research Archive (SHURA) at:

<http://shura.shu.ac.uk/16531/>

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

Published version

LARDAS, Michael, LIEW, Matthew, VAN DEN BERGH, Roderick C., DE SANTIS, Maria, BELLMUNT, Joaquim, VAN DEN BROECK, Thomas, CORNFORD, Philip, CUMBERBATCH, Marcus G., FOSSATI, Nicola, GROSA, Tobias, HENRY, Ann M., BOLLA, Michel, BRIERS, Erik, JONIAU, Steven, LAM, Thomas B., MASON, Malcolm D., MOTTET, Nicolas, VAN DER POEL, Henk G., ROUVIÈRE, Olivier, SCHOOTS, Ivo G., WIEGEL, Thomas, WILLEMSE, Peter-Paul M., YUAN, Cathy Yuhong and BOURKE, Liam (2017). Quality of life outcomes after primary treatment for clinically localised prostate cancer: A systematic review. *European Urology*, 72 (6), 869-885.

Copyright and re-use policy

See <http://shura.shu.ac.uk/information.html>

Table 1b: Baseline characteristics of prospective studies

Study ID & year, country, design, recruitment period, PROM tool used	Interventions	N	Age: Mean (SD), median [range] {95% CI}	FU (months) Mean (SD), median [range]	T stage	Gleason score n or mean (SD)	PSA, n mean (SD) median [range]	Co-morbidity
Bacon 2001^a [14], USA, prospective, 1993-1998 UCLA PCI	Radical prostatectomy	421	68	Up to 60 months	T1: (0 %) T2: (95%) Unspecified: (0%) Missing: (5%)	2-4: (7%) 5 -6: (57%) 7-10: (29%) Missing: (7%)	NR	Heart disease (12%) High blood pressure (34%) High cholesterol (51%) Diabetes (5%) Stroke (1%) Arthritis (5%) Missing (2%)
	EBRT	221	75		T1: (1%) T2: (84%) Unspecified: (5%) Missing: (10%)	2-4: (13%) 5 -6: (39%) 7-10: (28%) Missing:(19%)		Heart disease (24%) High blood pressure (48%) High cholesterol (50%) Diabetes (11%) Stroke (4%) Arthritis (8%) Missing (5%)
	Brachytherapy	69	71		T1: (1%) T2: (81%) Unspecified: (3%) Missing: (14%)	2-4: (13%) 5 -6: (51%) 7-10: (22%) Missing:(14%)		Heart disease (17%) High blood pressure (52%) High cholesterol (48%) Diabetes (0%) Stroke (4%) Arthritis (4%) Missing (9%)
Barocas 2017^b [30], USA, prospective, 2011-2012	Radical prostatectomy	1523	61.5 {61.1-61.8}	40 [38-45]	T1c: 1140 (75%) T2: 380 (25%)	3+3: 744 (49%) 3+4: 458 (30%) 4+3: 170 (11%)	0-4: 334 (22%) 4.1-10: 1018 (67%) 10.1-20: 133 (9%)	Total Illness Burden Index 0-2: 481 (33%) 3-4: 624 (43%) ≥5: 343 (24%)

Study ID & year, country, design, recruitment period, PROM tool used	Interventions	N	Age: Mean (SD), median [range] {95% CI}	FU (months) Mean (SD), median [range]	T stage	Gleason score n or mean (SD)	PSA, n mean (SD) median [range]	Co-morbidity
EPIC						8-10: 147 (10%)	>20: 38 (2%)	
	EBRT	598	68.1 {67.6-68.7}		T1c: 436 (73%) T2: 161 (27%)	3+3: 210 (35%) 3+4: 201 (34%) 4+3: 86 (14%) 8-10: 99 (17%)	0-4: 85 (14%) 4.1-10: 394 (66%) 10.1-20: 86 (14%) >20: 33 (6%)	Total Illness Burden Index 0-2: 101 (17%) 3-4: 238 (41%) ≥5: 241 (42%)
Borchers 2004 [15], Germany, prospective, 1999-2004? EORTC-QLQ-C30	Radical prostatectomy + NS	38	59.2 (4.6)	26 [12-60] * *The study reports <u>only 12 months FU results</u>	T1c: 22 (58%) T2a: 16 (42%)	(2-4): 14 (38%) (5-6): 24 (62%)	6.4 (2.8)	NR
	Radical prostatectomy no NS	42	65.2 (4.9)		T1c: 19 (45%) T2a: 23 (55%)	(2-4): 18 (42%) (5-6): 24 (58%)	6.6 (2.6)	
	Brachytherapy	52	66.5 (6.0)		T1c: 23 (44%) T2a: 39 (56%)	(2-4): 21 (40%) (5-6): 31 (60%)	6.6 (2.6)	

Study ID & year, country, design, recruitment period, PROM tool used	Interventions	N	Age: Mean (SD), median [range] {95% CI}	FU (months) Mean (SD), median [range]	T stage	Gleason score n or mean (SD)	PSA, n mean (SD) median [range]	Co-morbidity
Evans 2015 [16], USA, prospective, patients for brachytherapy and IMRT were enrolled from 2003-2006 SBRT patients were enrolled from 2007-2011 EPIC	Brachytherapy	262	65 (7.4)	24	T1: 221 (84%) T2:41 (16%)	2-6:206 (79%) 7:55 (21%) 8-10:1 (0.4%) N/A: 0	5.0 (2.8)	NR
	IMRT	160	69 (7.4)		T1: 128 (80%) T2:32 (20%)	2-6:99 (62%) 7:60 (38%) 8-10:1 (0.6%) N/A: 0	5.8 (4.2)	
	SBRT	381	70 (7.4)		T1:289 (76%) T2:92 (24%)	2-6:211 (55%) 7:164 (43%) 8-10:5 (1.3%) N/A: 1 (0.26%)	6.1 (3.9)	
Jeldres 2015 [17], USA, prospective, 2007 EPIC	Active Surveillance	77	65 (8.1)	27 (17)	T1a-T1c: 50 (65%) T2a: 27 (35%)	NR but inclusion criteria state that biopsy Gleason score: ≤6	4.0 (1.9)	0: 17 1: 21 ≥2: 39
	Radical Prostatectomy	228	58 (7.4)	36 (17)	T1a-T1c: 161 (71%) T2a: 67 (29%)		4.2 (1.9)	0: 56 1: 86 ≥2: 86

Study ID & year, country, design, recruitment period, PROM tool used	Interventions	N	Age: Mean (SD), median [range] {95% CI}	FU (months) Mean (SD), median [range]	T stage	Gleason score n or mean (SD)	PSA, n mean (SD) median [range]	Co-morbidity
Kobuke 2009 [18], Japan, prospective, 2004-2005 UCLA-PCI	Radical prostatectomy	37	67 [54-75]	12	T1: 19 (51%) T2: 18 (49%)	6: 14 (38%) 7: 18 (49%) 8-9: 5 (13%)	8.31 [1.796-27.44]	NR
	Brachytherapy	36	67 [53-76]		T1: 17 (47%) T2: 19 (53%)	6: 21 (58%) 7: 7 (20%) 8-9: 8 (22%)	7.73 [1.13-74]	
Malcolm 2010^c [19], USA, prospective, 2000-2008 UCLA-PCI	Open Radical prostatectomy	135	59 (7)	36	T1c or less: 112 (83%) T2a: 17 (13%) T2b+: 6 (4%) Unknown: 0	≤ 6: 93 (69%) 7: 34 (25%) ≥8: 8 (6%)	5.7 [4.7-7.3]	NR
	Robotic Radical prostatectomy	447	59 (6)		T1c or less: 340 (76%) T2a: 68 (15%) T2b+: 32 (7%) Unknown: 7 (2%)	≤ 6: 269 (60%) 7: 154 (34%) ≥8: 24 (5%)	5.2 [3.9-6.8]	
	Brachytherapy	122	66 (7)		T1c or less: 98 (80%) T2a: 16 (13%) T2b+: 3 (2%) Unknown: 5 (4%)	≤ 6: 88 (72%) 7: 28 (23%) ≥8: 6 (5%)	6.0 [4.5-8.2]	

Study ID & year, country, design, recruitment period, PROM tool used	Interventions	N	Age: Mean (SD), median [range] {95% CI}	FU (months) Mean (SD), median [range]	T stage	Gleason score n or mean (SD)	PSA, n mean (SD) median [range]	Co-morbidity
Namiki 2006 [20], Japan, prospective, 2004-2005 UCLA-PCI	Radical prostatectomy	67	64.3 (6.5)	12	T1: 50 (75%) T2: 17 (25%)	≤6: 12 (18%) ≥7: 55 (82%)	8.8 (6.8)	NR
	Brachytherapy	70	67.0 (6.4)		T1: 56 (80%) T2: 14 (20%)	≤6: 47 (67%) ≥7: 23 (33%)	7.0 (3.4)	
Pardo 2010 [21], Spain, prospective, 2003-2005 EPIC	Radical prostatectomy	123	64.2 (5.5)	36	T1: 82 (67%) T2: 41 (33%) Unknown: 0	6.9 (6.4)	8.0 (3.3)	Number of chronic conditions 2.33 (1.5)
	EBRT	127	69.5 (5.4)		T1: 73 (57%) T2: 53 (42%) Unknown: 1 (1%)	5.9 (1.0)	8.2 (4.7)	Number of chronic conditions 2.5 (1.8)
	Brachytherapy	185	66.0 (7.0)		T1: 152 (82%) T2: 33 (18%) Unknown: 0	5.9 (5.3)	6.8 (2.1)	Number of chronic conditions 2.3 (1.6)
Pinkawa 2009 [22], Germany, prospective, 2003-2006 EPIC	Brachytherapy	52	68 [51-77]	16	≤T2a: 51 (98%)	<7: 50 (96%)	7 [1.5-14]	Hypertension: 11 (21%) Coronary heart disease: 6 (12%) Diabetes: 6 (12%) COPD: 4 (8%)

Study ID & year, country, design, recruitment period, PROM tool used	Interventions	N	Age: Mean (SD), median [range] {95% CI}	FU (months) Mean (SD), median [range]	T stage	Gleason score n or mean (SD)	PSA, n mean (SD) median [range]	Co-morbidity
	EBRT	52	68 [48–77]		≤T2a: 43 (83%)	<7: 39 (75%)	8 [2.5–24]	Hypertension: 11 (21%) Coronary heart disease: 13 (25%) Diabetes: 7 (14%) COPD: 6 (12)
Punnen 2014 ^d [25], USA, prospective, 1995-2011 UCLA-PCI	NS Radical prostatectomy	1139	60.0 (6.8)	73 [51–100]	NR	NR	NR	none: 228 (20%) 1: 384 (34%) 2: 309 (28%) ≥3: 201 (18%)
	Non NS Radical prostatectomy	860	62.9 (6.6)	76 [51–103]				none: 148 (18%) 1: 249 (29%) 2: 226 (27%) ≥3: 224 (26)
	Brachytherapy	684	68.3 (7.2)	83 [52–104]				none: 61 (9%) 1: 168 (25%) 2: 202 (31%) ≥3: 233 (35%)
	EBRT	386	71.3 (6.2)	71 [48–100]				none: 31 (8%) 1: 85 (22%) 2: 110 (29%) ≥3: 155 (41%)

Study ID & year, country, design, recruitment period, PROM tool used	Interventions	N	Age: Mean (SD), median [range] {95% CI}	FU (months) Mean (SD), median [range]	T stage	Gleason score n or mean (SD)	PSA, n mean (SD) median [range]	Co-morbidity
Resnick 2013 [26]/ Potosky 2004 [23]/ Potosky 2000 [24], USA, prospective, 1994-1995 PCOS questionnaire	Radical prostatectomy	1164	64 [59–68]	180	T1: 377 (32.4%) T1/T2: 279 (24.0%) T2: 508 (43.6%)	2–4: 743 (64%) 5–7: 216 (18%) 8–10: 73 (7%) Unknown: 132 (11%)	<4: 122 (10%) 4–10: 703 (61%) >10: 339 (29%)	No. of coexisting illnesses 0: 513 1: 368 2: 179 ≥3: 104
	EBRT	491	69 [64–71]		T1: 150 (30.6%) T1/T2: 118 (24.1%) T2: 222 (45.3)	2–4: 292 (59%) 5–7: 110 (22%) 8–10: 46 (10%) Unknown: 43 (9%)	<4: 43 (9%) 4–10: 252 (56%) >10: 196 (35%)	No. of coexisting illnesses 0: 159 1: 160 2: 93 ≥3: 79
Sanda 2008 [27], USA, prospective, 2003-2006 EPIC	Radical prostatectomy	603	59 [38–79]	30	T1: 436 (72%) T2: 167 (28%)	<7: 371 (62%) 7: 207 (34%) >7: 25 (4%)	<4: 126 (21%) 4–10: 399 (66%) >10: 78 (13%)	Mean number of coexisting illnesses 0.9 (1.1)
	EBRT	292	69 [45–84]		T1: 202 (69%) T2: 90 (31%)	<7: 129 (44%) 7: 123 (42%) >7: 40 (14%)	<4: 46 (16%) 4–10: 177 (61%) >10: 69 (24%)	Mean number of coexisting illnesses 1.5 (1.2)

Study ID & year, country, design, recruitment period, PROM tool used	Interventions	N	Age: Mean (SD), median [range] {95% CI}	FU (months) Mean (SD), median [range]	T stage	Gleason score n or mean (SD)	PSA, n mean (SD) median [range]	Co-morbidity
	Brachytherapy	306	65 [44–84]		T1: 254 (83%) T2: 51 (17%)	<7: 227 (74%) 7: 76 (25%) >7: 2 (1%)	<4: 67 (22%) 4–10: 217 (71%) >10: 21 (7%)	Mean number of coexisting illnesses 1.3 (1.1)
Schapira 2001^e [28], USA, prospective, NR, UCLA-PCI	Radical prostatectomy	42	64 [58-68]	12	T1: 55% T2: 45%	2-4: 30% 5-6: 49% 7: 19% 8-10: 3%	7.6 [4.9-11.1]	Charlson Comorbidity Index 0.57 (0.99)
	EBRT	51	73 [68-75]		T1: 43% T2: 57%	2-4: 16% 5-6: 51% 7: 29% 8-10: 4%	7.1 [4.9-12.3]	Charlson Comorbidity Index 2.0 (2.1)
Symon 2006 [29], USA, prospective, NR EPIC	Radical prostatectomy	24	57.5 (7.7)	12	T1: 13 (56.5%) T2: 10 (43.5%)	2-6: 12 (50%) 7: 11 (46%) 8-10: 1 (4%)	4-10: 22 (92%) >10: 2 (8%)	NR
	EBRT	26	61.9 (27)		T1: 19 (76.0) T2: 6 (24.0)	2-6: 10 (38%) 7: 15 (58%) 8-10: 1 (4%)	4-10: 20 (77%) >10: 5 (19%)	

NR: not reported

EBRT: External beam radiotherapy

IMRT: Intensity-modulated radiotherapy

SBRT: Stereotactic body radiotherapy

a: Watchful waiting and hormonal arms of the study have been excluded from this review

- b: Active surveillance arm of the study has been excluded from this review, as authors did not distinguish between watchful waiting, active surveillance, and treatment delay
- c: Cryotherapy arm of the study has been excluded from this review
- d: Watchful waiting/active surveillance and ADT arms of the study have been excluded from this review
- e: Expectant management arm of the study have been excluded from this review