

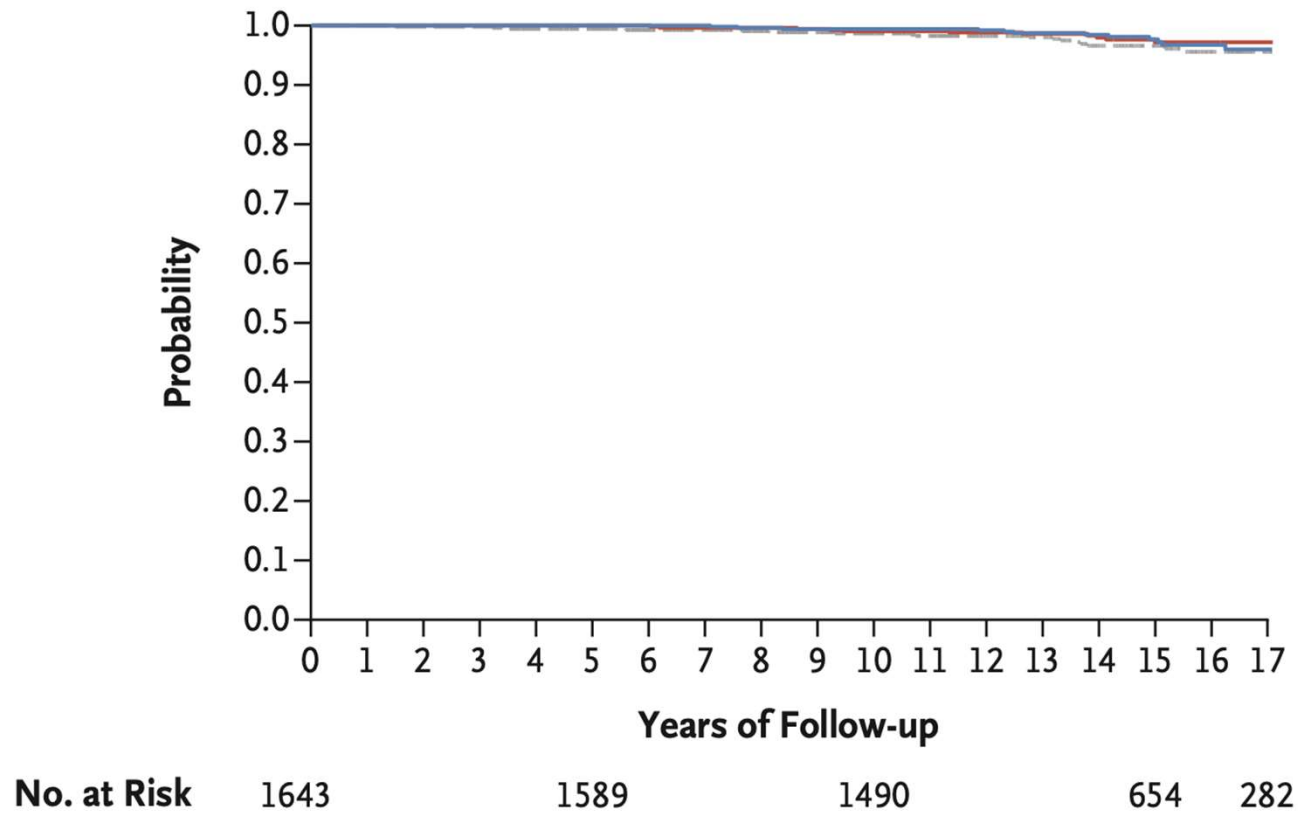
Radiotherapie voor prostaatkanker: *less is more*

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Afdelingshoofd bestralingsafdeling | Iridium

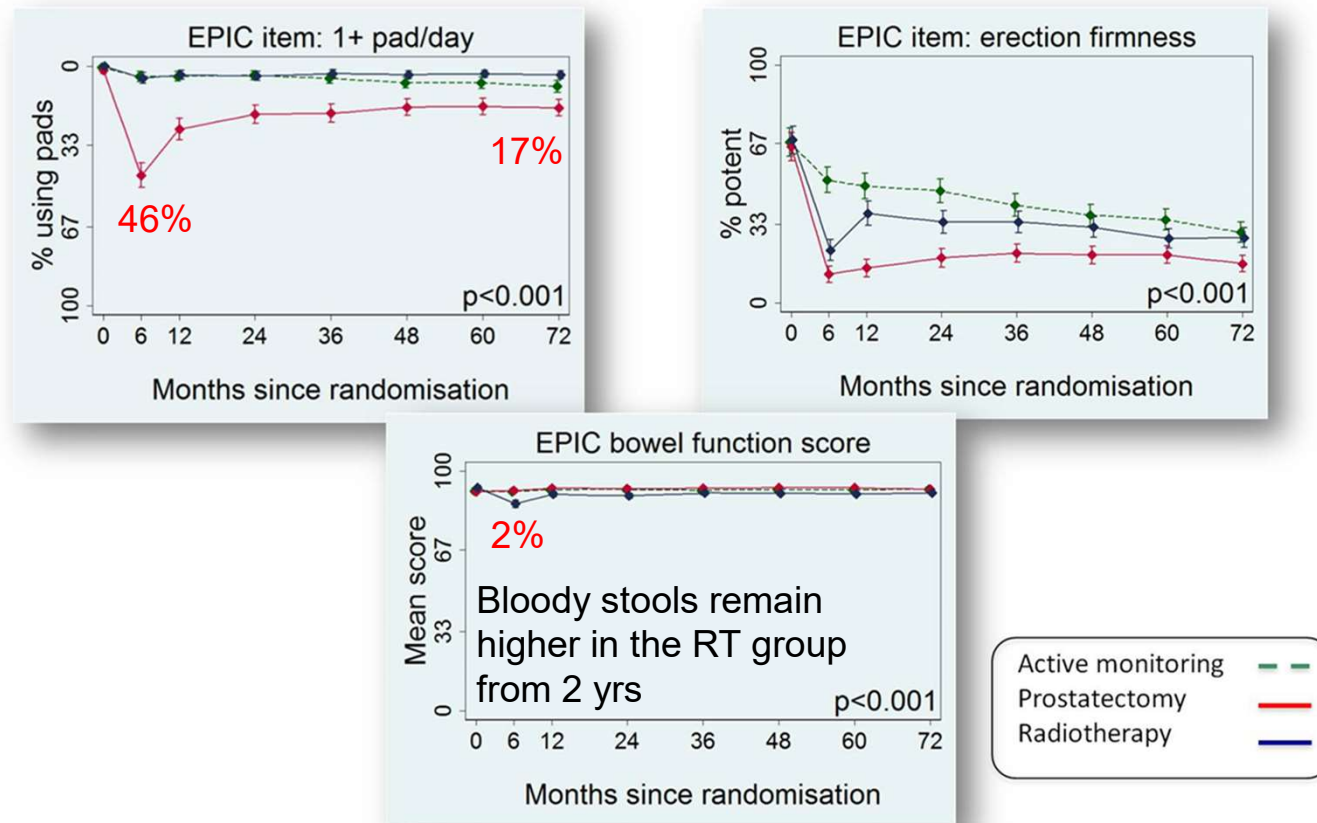


RT is even doeltreffend als prostatectomie

Prostate Cancer–Specific Survival



Maar heeft een ander toxiciteitsprofiel (PROMs)



RT als definitieve behandeling voor prostaatkanker

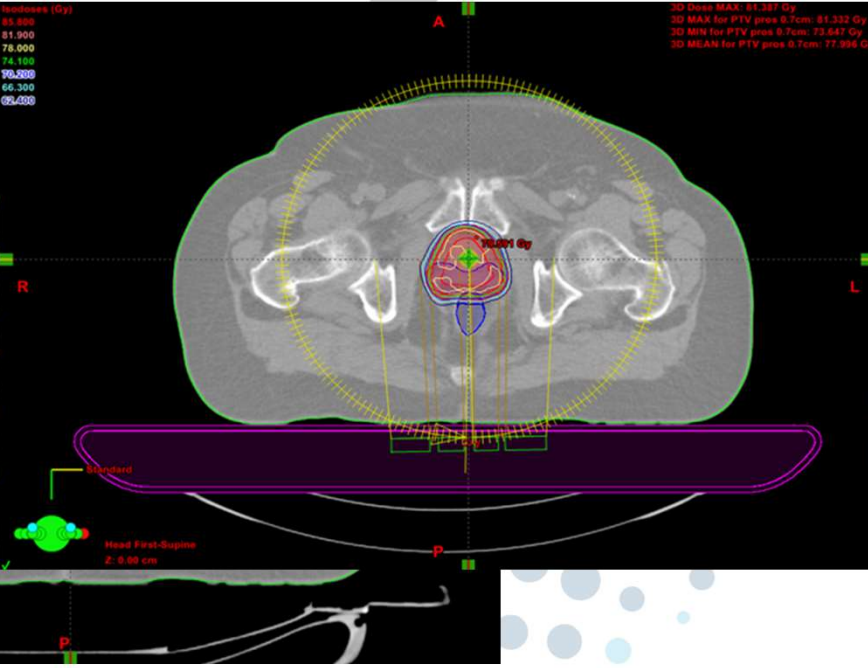
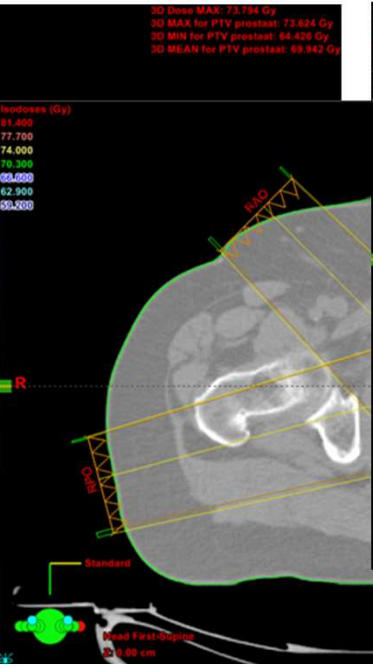
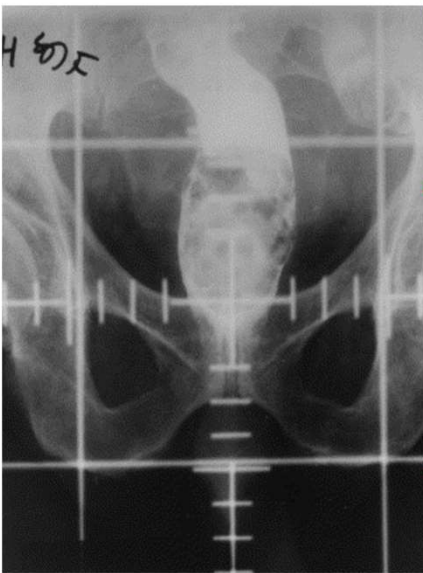
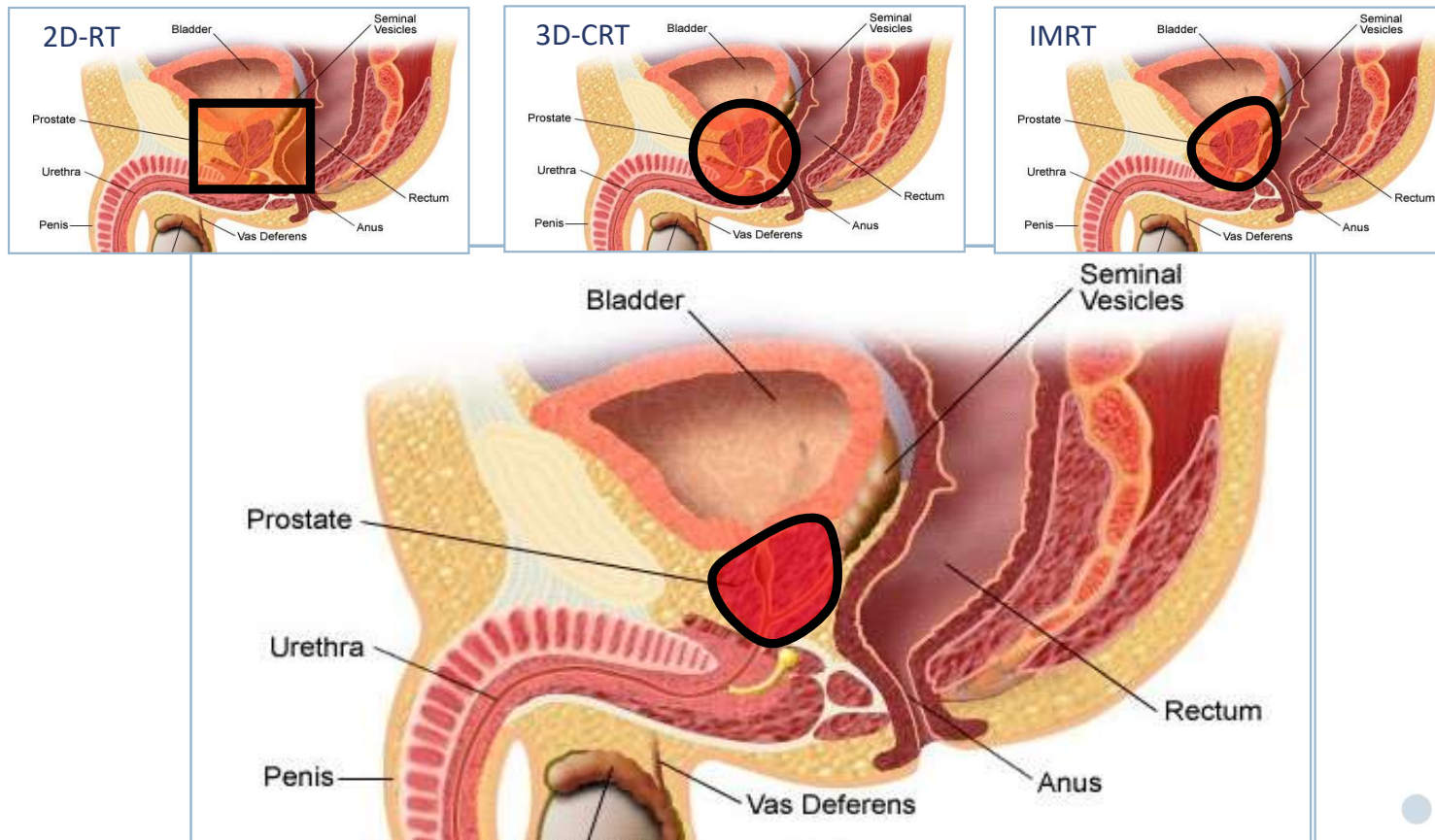
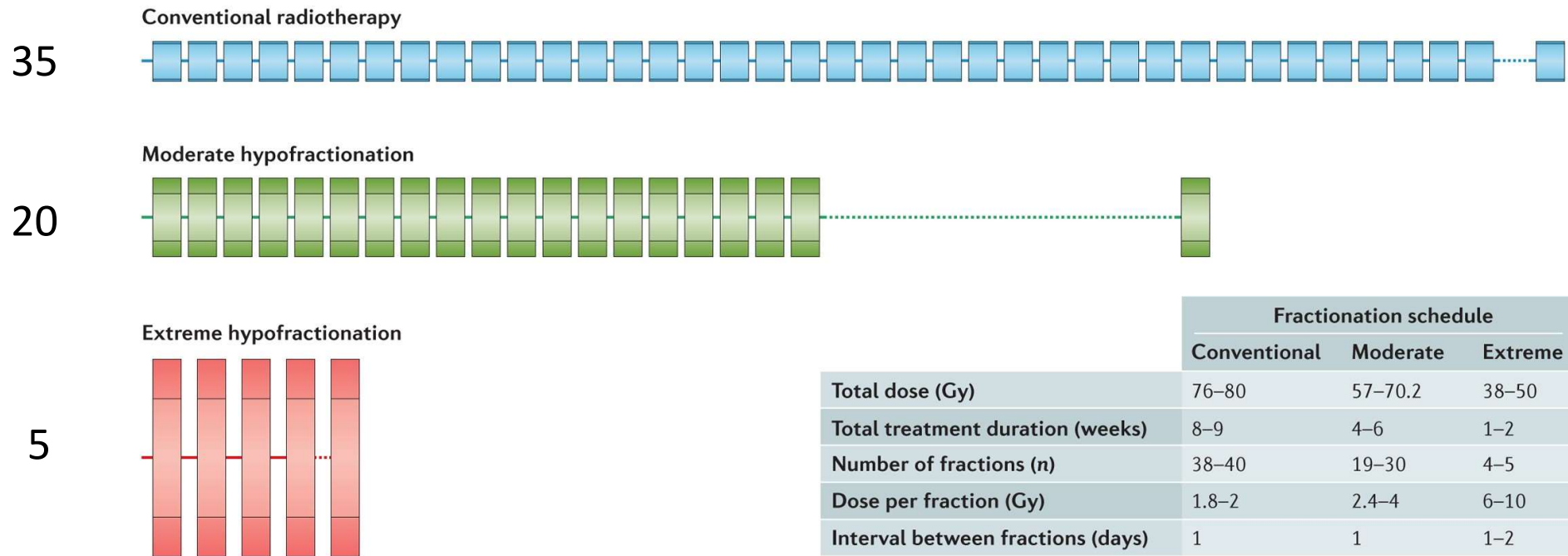


Image-guided radiation therapy (IGRT)



Toegenomen hypofractionatie

Total treatment duration →



	Fractionation schedule		
	Conventional	Moderate	Extreme
Total dose (Gy)	76–80	57–70.2	38–50
Total treatment duration (weeks)	8–9	4–6	1–2
Number of fractions (n)	38–40	19–30	4–5
Dose per fraction (Gy)	1.8–2	2.4–4	6–10
Interval between fractions (days)	1	1	1–2

PACE-A: SBRT vs. RALP

Baseline characteristics	Prostatectomy (N = 60)		SBRT (N = 63)	
Age at randomisation, median (IQR)	65.5	(60.8, 68.4)	65.0	(59.3, 68.7)
Ethnic origin, n (%)				
White British	52	(87)	53	(84)
Any other White	5	(8.3)	3	(4.8)
Asian	1	(1.7)	2	(3.2)
Caribbean	0		3	(4.8)
African	1	(1.7)	0	
Chinese	1	(1.7)	0	
Not disclosed	0		2	(3.2)
T stage, n (%)				
T1c	6	(10)	2	(3.2)
T2a	22	(37)	26	(42)
T2b	7	(12)	10	(16)
T2c	24	(41)	24	(39)
Gleason score, n (%)				
3 + 3	12	(20)	14	(22)
3 + 4	48	(80)	49	(78)
NCCN risk group, n (%)				
Low	3	(5.0)	4	(6.4)
Intermediate	57	(95)	59	(94)
High	0		0	
Pretreatment PSA (ng/ml), median (IQR)	7.8	(6.2, 11.0)	7.9	(5.7, 11.0)
Pretreatment testosterone (nmol/l) ^a , median (IQR)	12.0	(9.2, 14.4)	11.3	(9.4, 15.0)
ASA grade ^b , n (%)				
I—normal healthy individual	26	(48)	—	—
II—Mild systemic disease that does not limit activity	27	(50)	—	—
III—Severe systemic disease that limits activity but is not incapacitating	1	(1.9)	—	—
Unobtainable	5		—	—
Not answered	1		—	—
Patients on concomitant medication at randomisation, n (%)				
Alpha blockers—yes	3	(5.0)	3	(4.8)
Anticholinergic—yes	0		4	(6.3)
5-Alpha-reductase inhibitors—yes	0		1	(1.6)
PDE5 inhibitors—yes	3	(5.0)	0	—

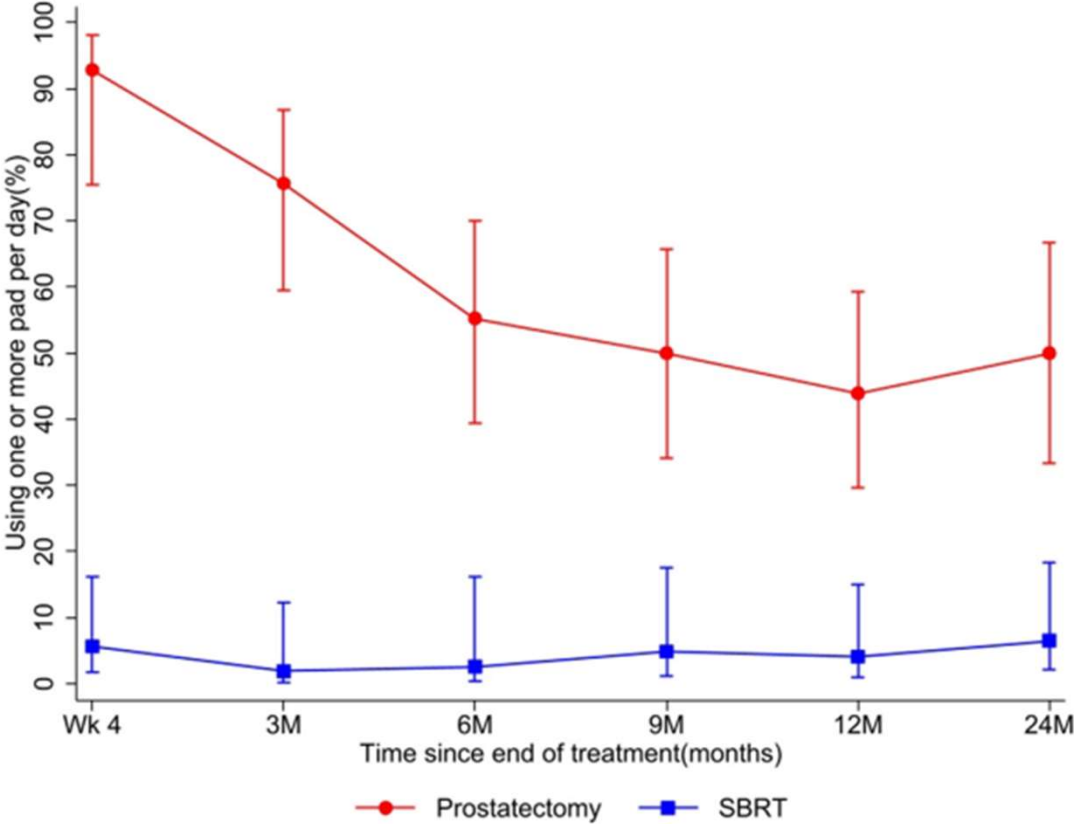
ASA = American Society of Anesthesiologists; IQR = interquartile range; NCCN = National Comprehensive Cancer Network; PDE5 = phosphodiesterase-5; PSA = prostate-specific antigen; SBRT = stereotactic body radiotherapy.

^a Missing: prostatectomy, n = 6; SBRT, n = 5.

^b There were no participants in grade IV—incapacitating systemic disease that is constantly life threatening, and grade V—moribund, not expected to survive 24 hours with or without prostatectomy category.



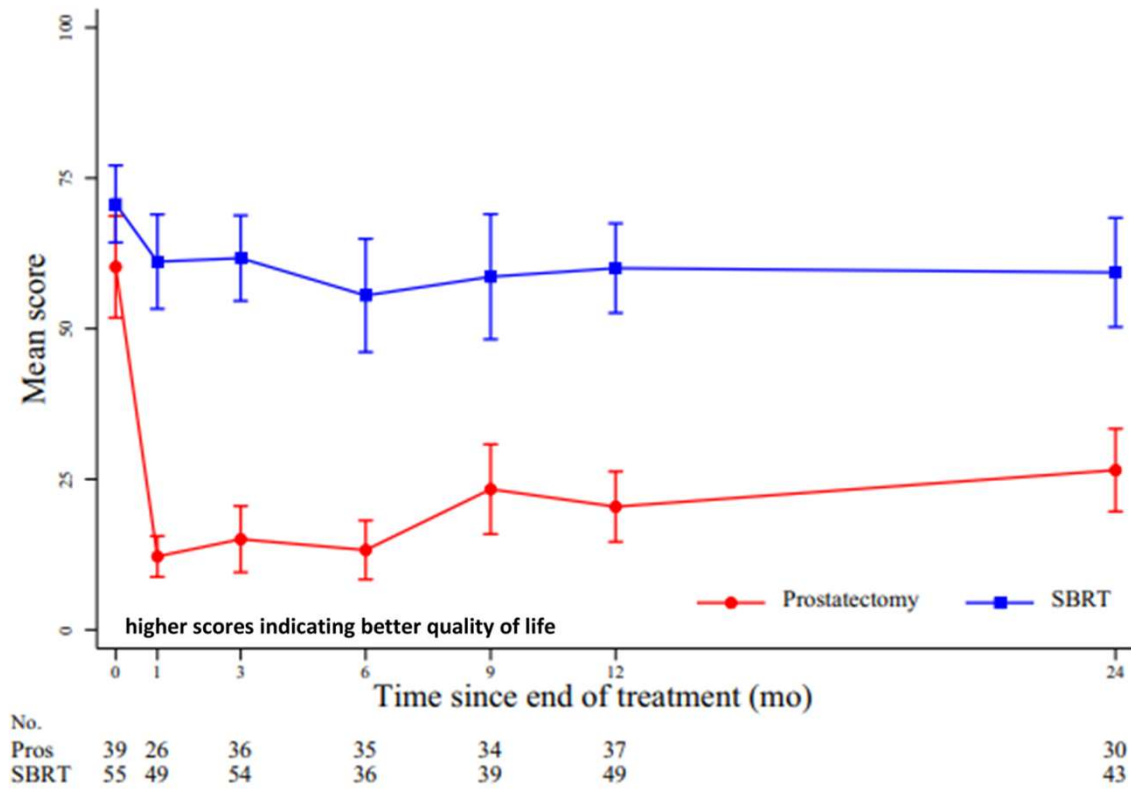
PACE-A: incontinentie



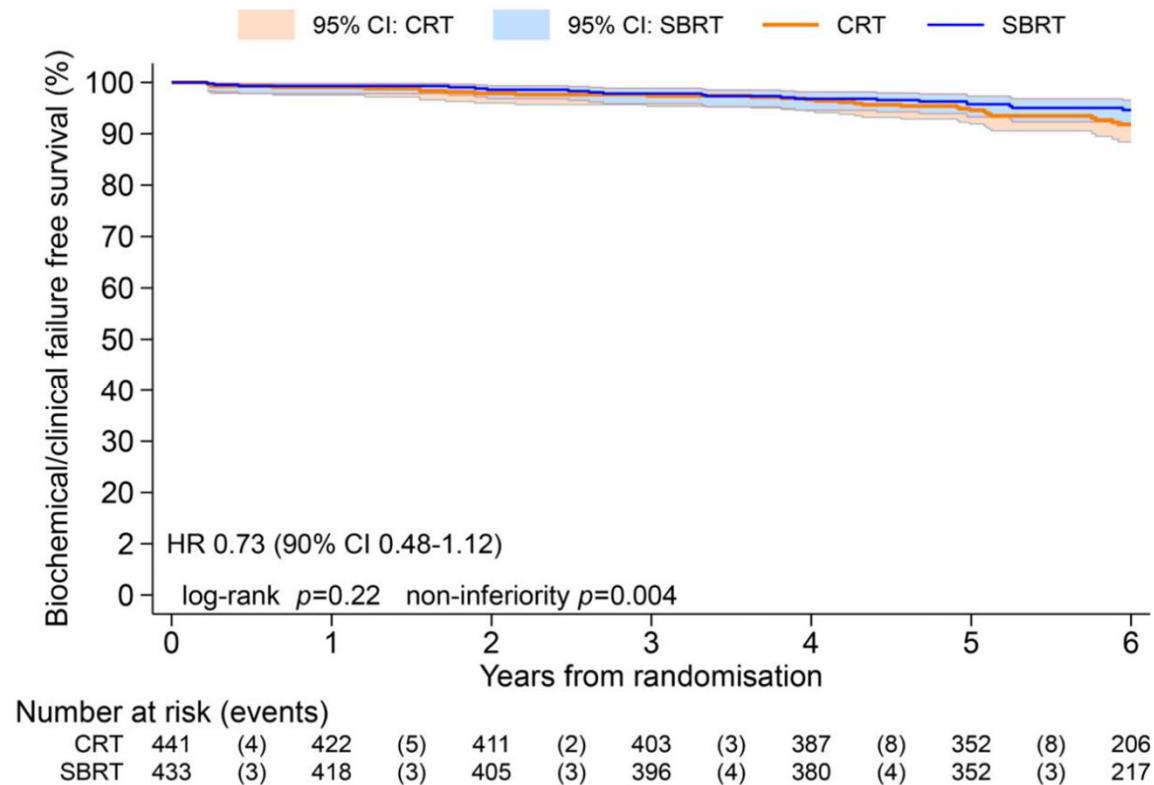
PACE-A: EPIC-26 bowel domain



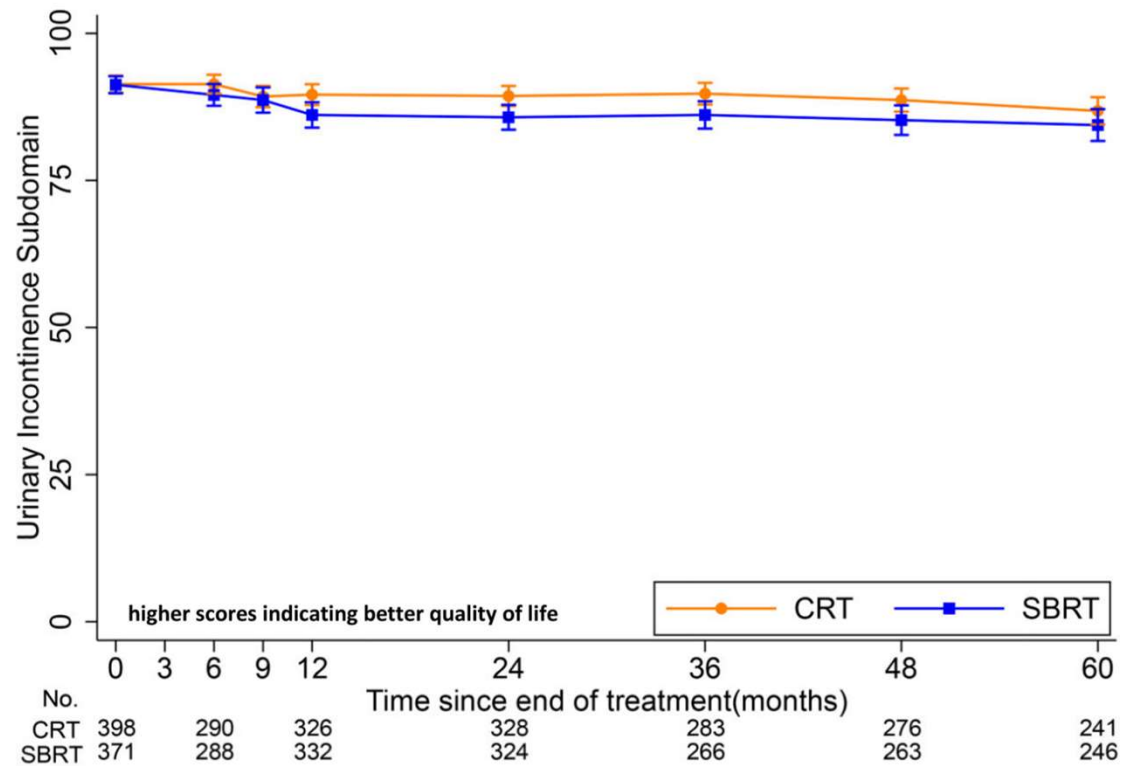
PACE-A: EPIC-26 sexual domain



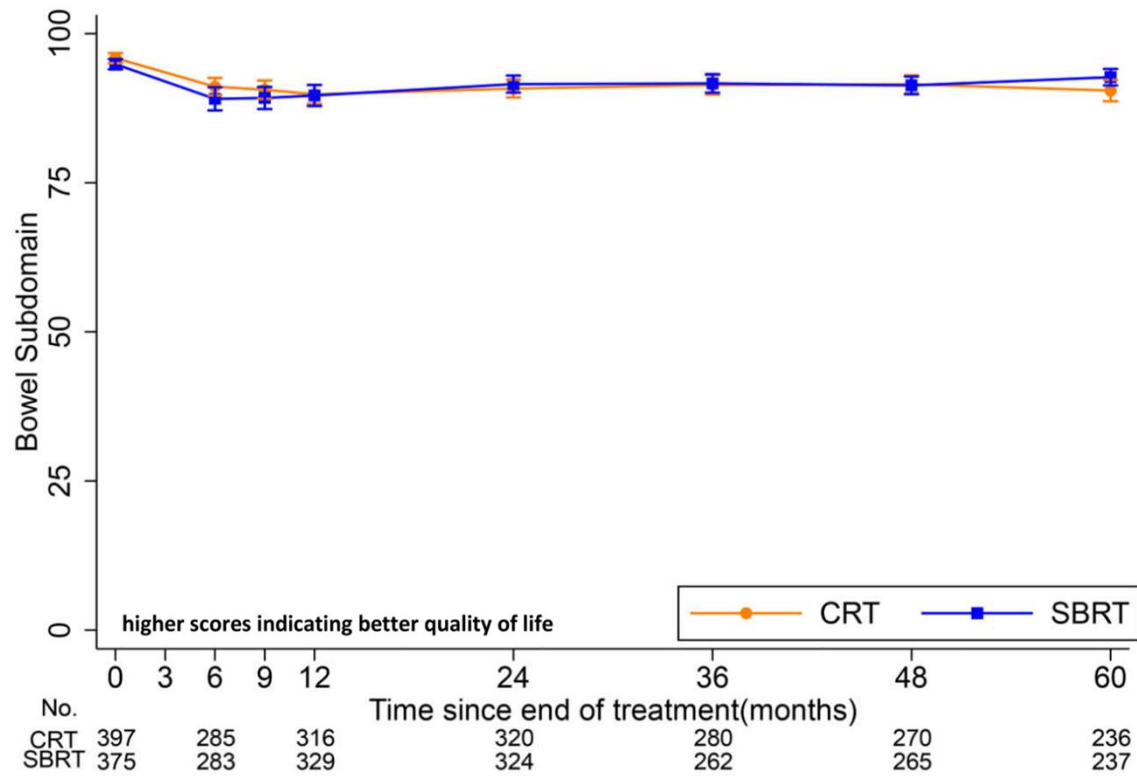
PACE-B: SBRT vs. “conventionele” RT



PACE-B: EPIC-26 urinary incontinence domain



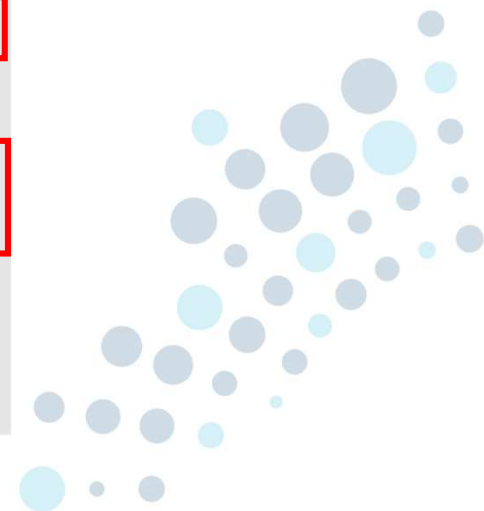
PACE-B: EPIC-26 bowel domain



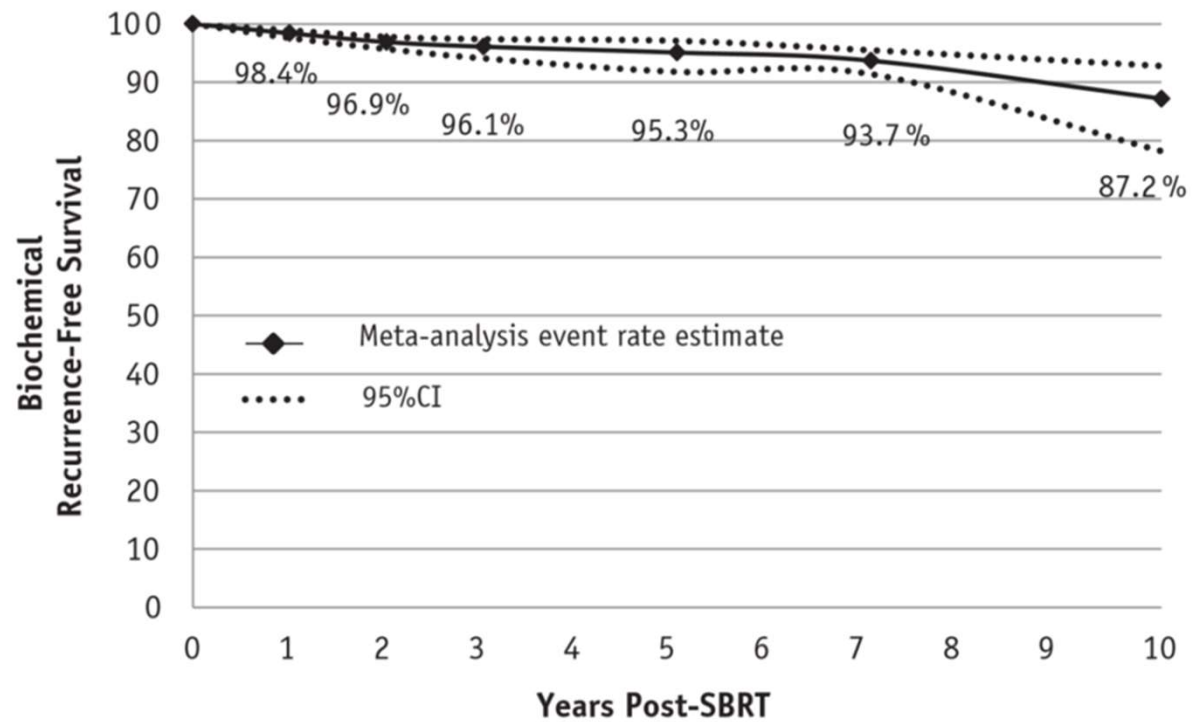
Systematic review and meta-analysis

Table 1 Summary trial and patient characteristics

	Trial level n (%) or median (range)	Patient level* n (%) or mean (range)
Trials and prospective series (n)	38	6116
Phase 1	1	45
Phase 1/2	4	245
Phase 2	15	1,536
Phase 3	2	638
Prospective	14	1,472
Registry	2	2,180
Patients (n)	6116	6116
Fractions	5 (4-9)	5 (4-9)
Dose per fraction	7.25 Gy (5-10 Gy)	7.4 Gy (5-10 Gy)
Average follow-up [†]	30 mo (12-115 mo)	39 mo (12-115 mo)
Average age [‡]	68 y (63-77 y)	68 y (63-77 y)
Clinical stage, n (%) [§]		
T1	28 (88)	67%
T2	28 (88)	31%
T3	6 (19)	2%
T4	1 (3)	0%
Pre-SBRT PSA	6.8 ng/mL (4.7-72 ng/mL)	7.5 ng/mL (4.7-72 ng/mL)
NCCN risk group (V4.2018)		
Low	34 (92)	2745 (45)
Intermediate	29 (78)	2901 (47)
High	15 (38)	470 (8)
ADT receipt with SBRT [¶]	19 trials	654 (15%)
Number reporting bRFS	33 (87)	5778 (95)
Number reporting acute or late toxicity	37 (97)	6044 (99)
Number reporting HRQOL	25 (66)	3973 (65)
Number using EPIC-26	16 (42)	3293 (54)
Number reporting AUA IPSS	13 (34)	2399 (39)



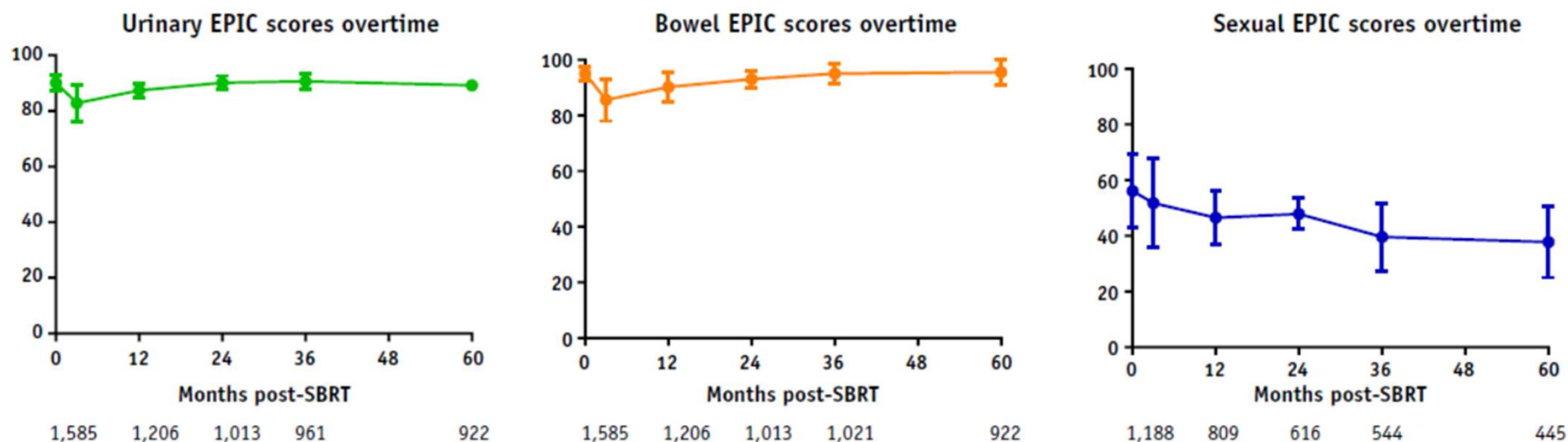
Biochemical recurrence-free survival



Years Post-SBRT	0	1	2	3	5	7	10
Number at risk	5013	4386	1856	2066	557	84	
Studies	31	23	16	10	2	1	



Patient-reported outcomes (EPIC-26)



- Estimated late grade 3 **genitourinary** and **gastrointestinal** toxicity rates were **2.0%** (95% CI, 1.4%-2.8%) and **1.1%** (95% CI, 0.6%-2.0%), respectively
- By 2 years post-SBRT, EPIC-26 urinary and bowel domain scores returned to baseline

SBRT @ Iridium

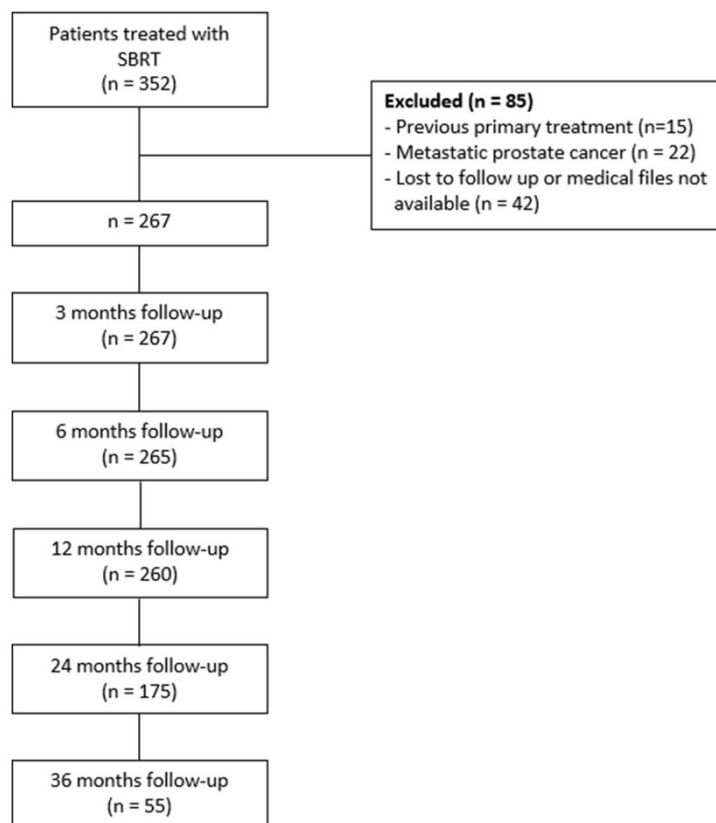


Table 1 Patient characteristics and descriptive data

Characteristic	Value
Total number of patients, n	267
Age at treatment, years <i>Mean (range)</i>	75 (51 – 92)
Clinical staging (TNM), n (%)	103 (39%)
cT1c	67 (25%)
cT2a	25 (9%)
cT2b	35 (13%)
cT2c	32 (12%)
cT3a	5 (2%)
cT3b	
Gleason score / ISUP score, n (%)	54 (20%)
6/1	87 (33%)
7 (3 + 4)/2	79 (30%)
7 (4 + 3)/3	28 (10%)
8/4	19 (7%)
9 (4 + 5 and 5 + 4)/5	
PSA level at diagnosis (iPSA), ng/mL <i>Mean (range)</i>	12.6 (2–215)
D'Amico risk classification	25 (9%)
Low risk	135 (51%)
Intermediate risk	107 (40%)
High risk	
Prostate volume, cubic centimeters (cc) <i>Median (standard deviation)</i>	37 (18,48)
Dose of radiation, n (%)	260 (97%)
5 × 7,25 Gy	7 (3%)
6 × 6 Gy	
Adjuvant ADT, n (%)	98 (36%)
None	96 (36%)
6 months	8 (3%)
1 year	58 (22%)
2 years	7 (3%)
3 years	
PSA Nadir, ng/mL <i>Mean (range)</i>	0.6 (<0.01–3.12)
Time until Nadir reached, months <i>Mean (range)</i>	9 (1–33)

TNM tumor, node, metastasis, ISUP international society of urological pathology, PSA prostate-specific antigen, ADT androgen deprivation therapy



Ziekte controle

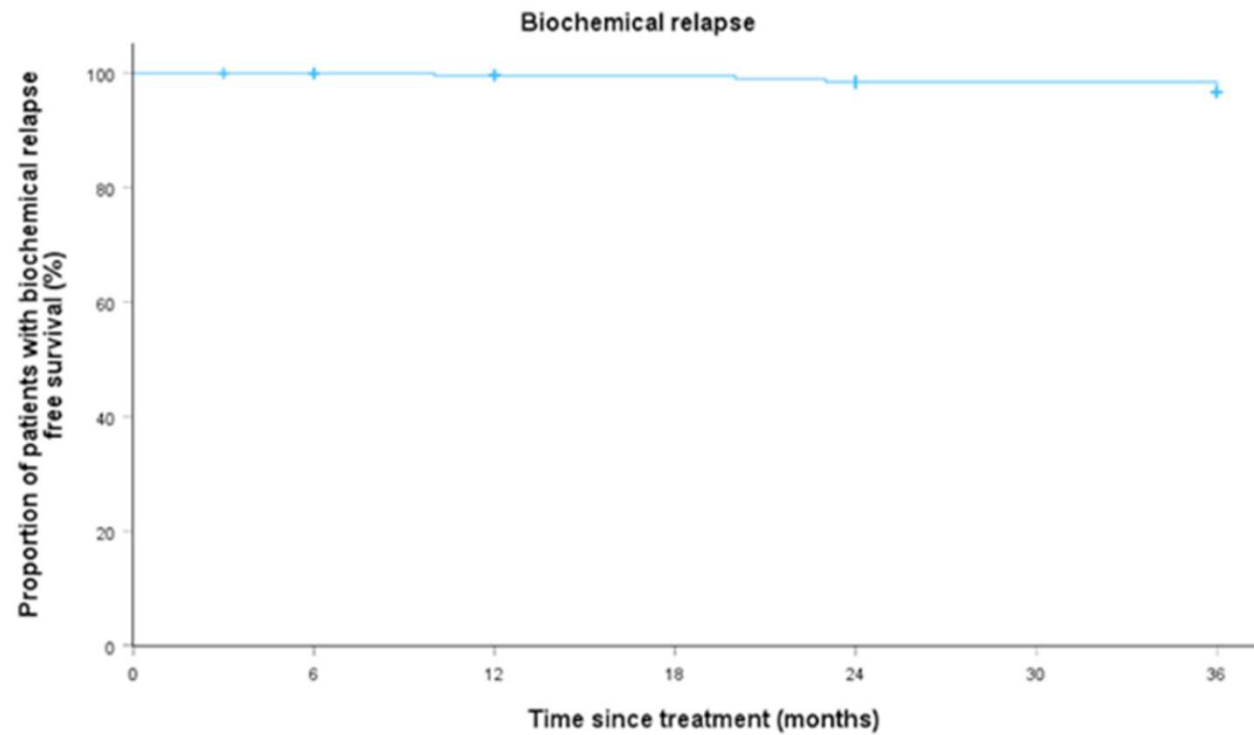
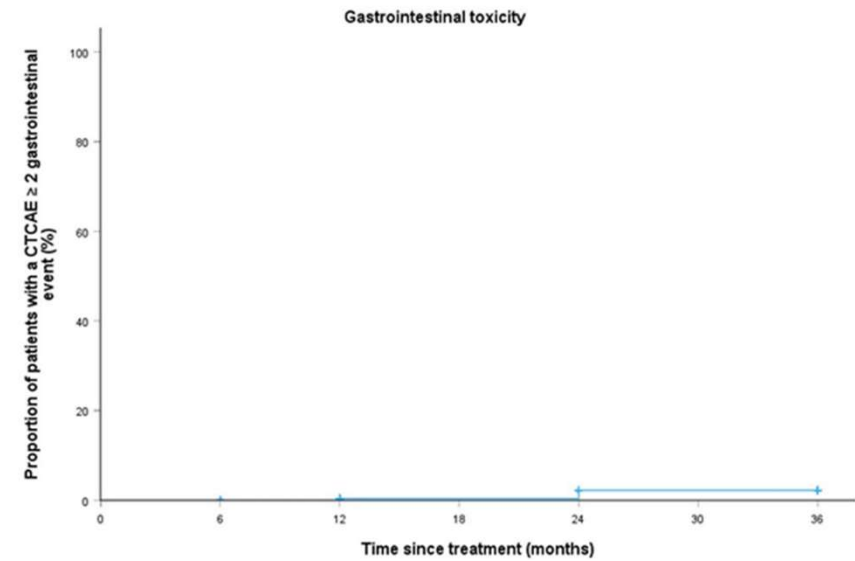
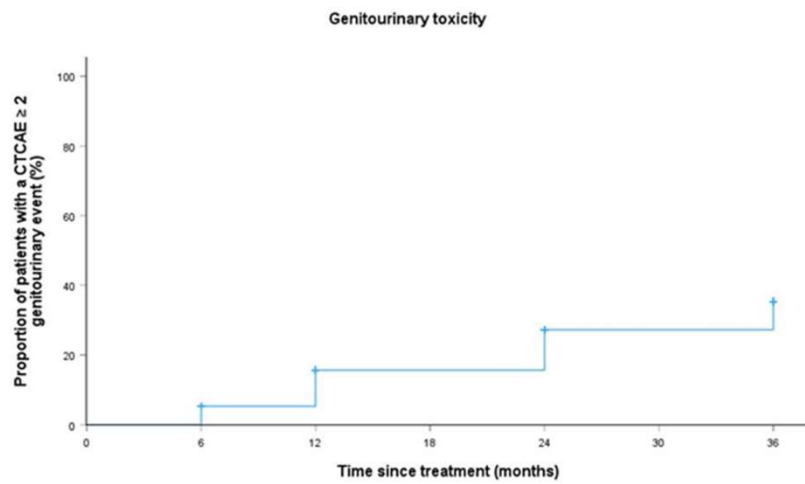


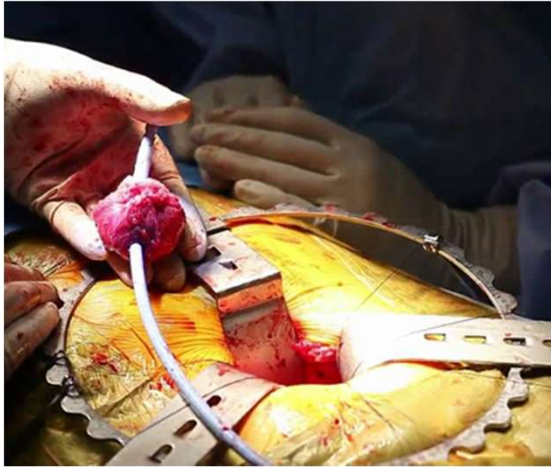
Fig. 4 Time to occurrence of biochemical relapse



Toxiciteit



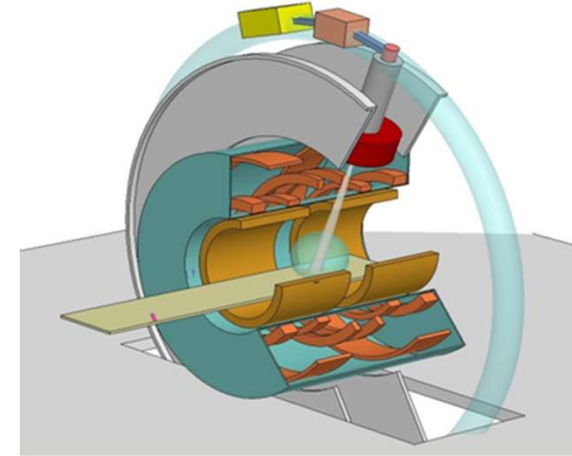
RT is the natural evolution of cancer treatment



Open surgery



Robotic surgery



Non-invasive surgery

