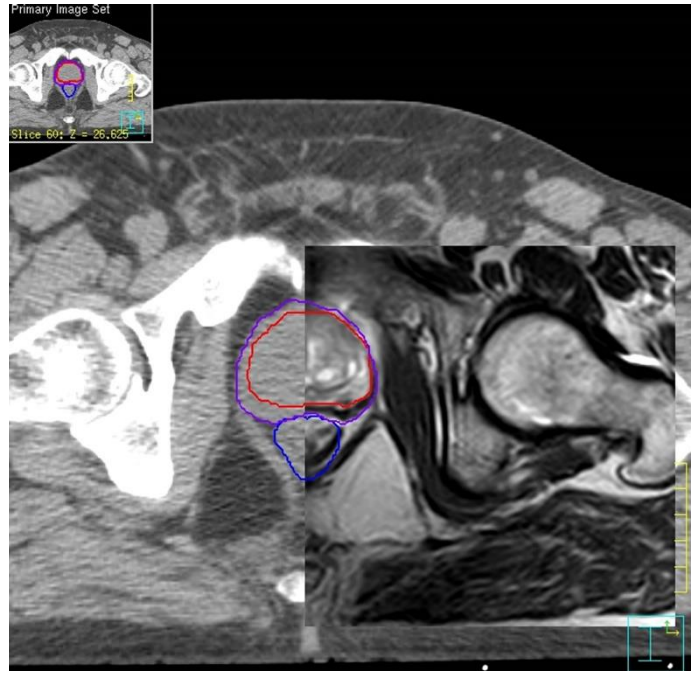


Introduction

Background:

- MRI has certain advantages in patients with prostate cancer but is rarely ordered for localized disease
- The diagnostic abilities of MRI have been studied in prostate cancer but there is a lack of research on clinical outcomes
- We hypothesized that the improved tissue delineation with MRI would help to decrease radiation dose to healthy tissues and result in less GU and GI toxicity



Purpose:

- Our goal is to evaluate the effect of pre-treatment MRI on genitourinary (GU) and gastrointestinal (GI) toxicity in prostate cancer patients who received definitive treatment

Patient and Treatment Characteristics

		MRI	No MRI	Total	p-value
		No. (%)	No. (%)	No. (%)	
Ethnicity	White	181 (86)	739 (85)	920 (85)	0.531
	Black	19 (9)	69 (8)	88 (8)	
NCCN Recurrence Risk Group	Very Low/Low	36 (17)	416 (48)	452 (42)	< 0.001
	Intermediate	80 (38)	314 (36)	394 (36)	
	High/Very High/Metastatic	75 (35)	127 (15)	202 (19)	
Biopsy Gleason Score	≤6	43 (23)	473 (55)	516 (49)	< 0.001
	7	86 (45)	283 (33)	369 (35)	
	≥8	62 (32)	102 (12)	164 (16)	
Radiotherapy Type	EBRT	51 (24)	236 (27)	287 (27)	< 0.001
	EBRT + Brachy	107 (51)	216 (25)	323 (30)	
	Brachy Alone	53 (25)	422 (48)	475 (44)	
Hormonal Therapy	Yes	81 (38)	271 (31)	352 (33)	0.042
Hypertension	Yes	20 (50)	109 (45)	129 (46)	0.59
Diabetes Mellitus	Yes	6 (15)	35 (15)	41 (15)	0.945
Biochemical Failure	No Failure	152 (92)	678 (94)	830 (94)	0.271
	Failure	14 (8)	44 (6)	58 (7)	

	Median (Range)	Median (Range)	Median (Range)	p-value
AUA Baseline	6 (0-23)	7 (0-35)	7 (0-35)	0.589
RAS Baseline	2 (0-21)	2 (0-19)	2 (0-21)	0.097

Table 1. Patient and Treatment Characteristics; more aggressive disease in MRI cohort

Methods

Patient Methods:

- We analyzed all 1085 patients (211 with MRI) who underwent definitive radiation treatment at our facility between January 01, 1999 and July 31, 2014
- We created two cohorts:
 - MRI cohort:** all patients with an MRI of the pelvis or prostate
 - Comparison cohort:** all patients without an MRI of the pelvis or prostate

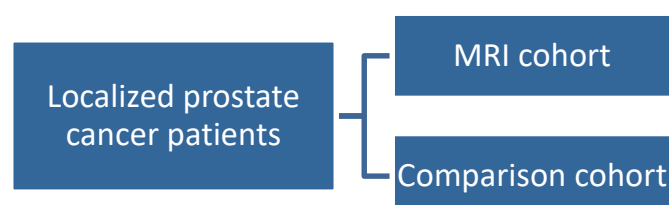


Figure 1. Patient cohorts

- We used the American Urological Association Symptom Score (AUA) to measure GU toxicity and the Rectal Assessment Scale (RAS) to measure GI toxicity

Improved GU Toxicity in MRI Cohort

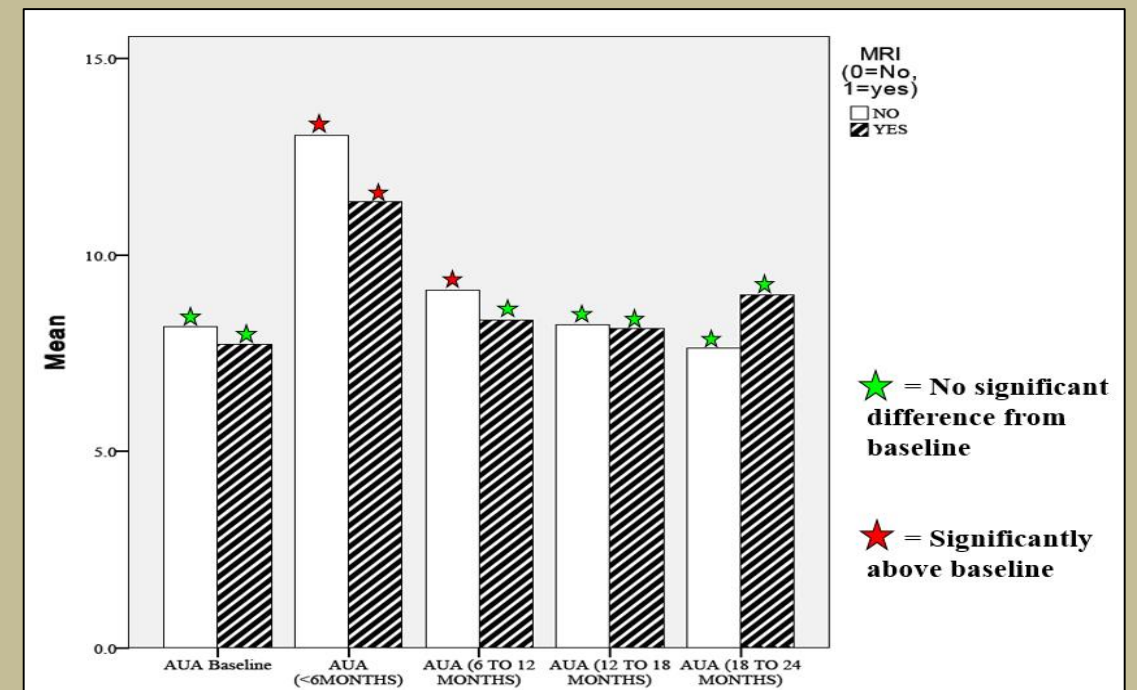


Figure 2. AUA Scores; favors MRI cohort

Improved GI Toxicity in MRI Cohort

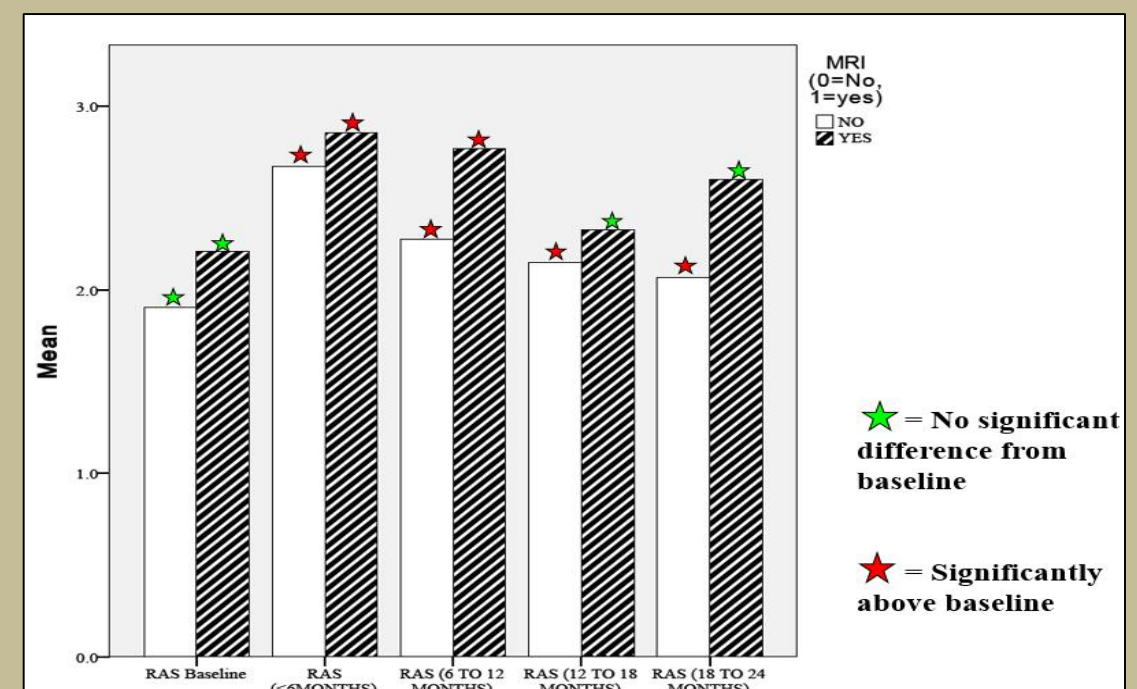


Figure 3. RAS Scores; favors MRI cohort

Results

- MRI cohort had significantly more aggressive disease
- AUA scores returned to baseline more quickly in the MRI cohort (6 months) than the comparison cohort (12 months)
- RAS scores returned to baseline at 12 months in the MRI cohort, but never returned to baseline in the comparison cohort
- The trend in FFBCF suggests improved control in comparison cohort ($p = 0.083$), possibly due to more aggressive disease in MRI cohort

No Difference in Biochemical Failure Rates

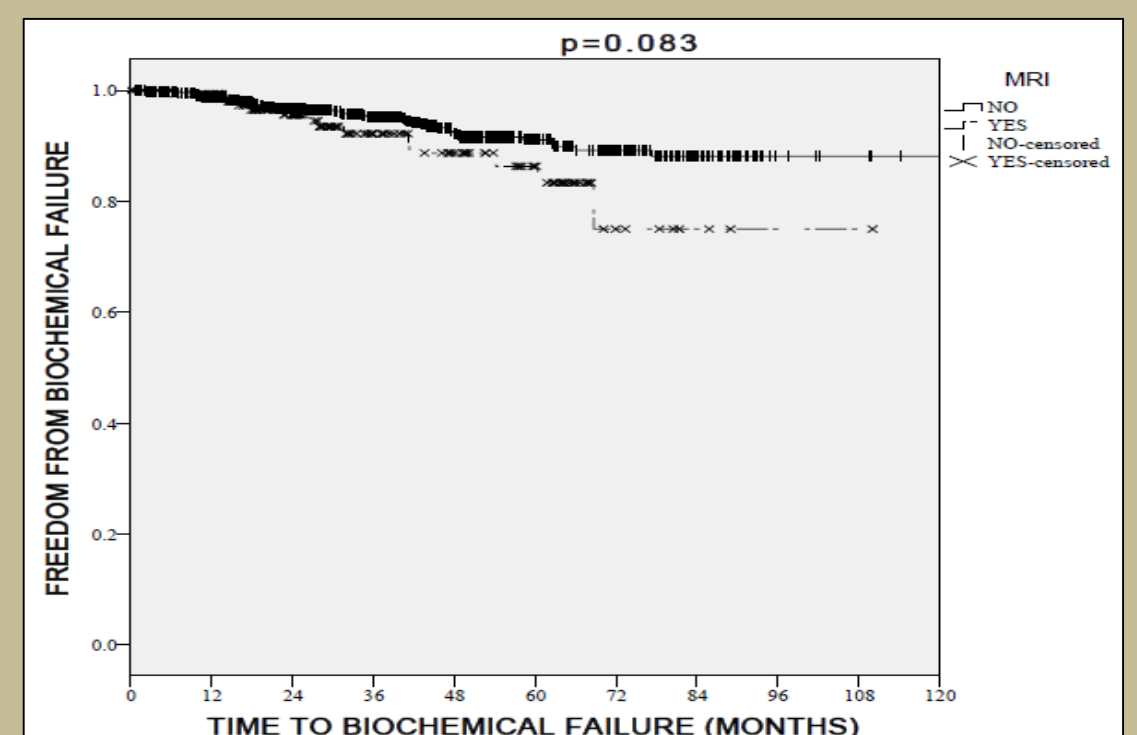


Figure 4. FFBCF Rates; no difference

Conclusions

- Pre-treatment MRI is associated with improved GU and GI toxicity outcomes in patients with localized prostate cancer
- Future prospective studies in a risk-matched cohort are needed to validate these findings