

Widespread Use of Multiparametric MRI in an Active Surveillance Cohort Results in Earlier Identification and Treatment of Clinically Significant Prostate Cancer

Alice Yu, Eduoard Nicaise, David Kuppermann, Timothy Baloda, Andrew Gusev, Amirkasra Mojtahed, Mukesh Harisinghani, Douglas M. Dahl, Matthew Wszolek, Anthony Zietman, Adam S. Feldman

Combined Harvard Urologic Oncology Fellowship at Massachusetts General Hospital and Brigham and Women's Hospital



MASSACHUSETTS
GENERAL HOSPITAL

HARVARD MEDICAL SCHOOL **TEACHING HOSPITAL**

No disclosures

- Active surveillance (AS) is an accepted strategy for management of low risk prostate cancer
- Most AS cohorts in the literature were described prior to widespread use of mpMRI
- mpMRI has become increasingly used in active surveillance
- The exact utility of mpMRI in active surveillance remains unclear

Impact of mpMRI on treatment-free survival in men on active surveillance

- Institutional database
- **1291 men** enrolled in AS between **Sept 1996** and **Dec 2016**
- Follow-up obtained until November 2018
- Median follow-up **6.4 years** (range 0.5 - 18.6)

- mpMRI-US fusion biopsy was introduced at our center in **July 2014**
- At that point, our practice changed such that **mpMRI became an integral component of AS**
- “**MRI era**” defined as confirmatory biopsy after July 2014
- Outcome: **freedom from treatment**
- Kaplan Meier analysis
- Cox Proportional Hazards Model

	Total Cohort N=1291		MRI era N=276		Pre-MRI-era N=1015		P value
Age at diagnosis, median (IQR*)	66.8	(60.8-71.9)	64.9	(59.0-60.2)	67.2	(61.5-72.2)	<0.001
Gleason Score, n (%)							
6	1255	(97.2)	265	(96.0)	990	(97.5)	0.21
7	38	(2.8)	11	(4.0)	25	(2.5)	
PSA, ng/mL, median (IQR)	5.1	(4.0-6.9)	5.3	(4.0-6.9)	5.0	(3.9-6.9)	0.28
PSA density, ng/mL/cc, n (%)	0.11	(0.08-0.15)	0.11	(0.08-0.17)	0.11	(0.08-0.15)	0.50
Number of positive cores, median (IQR)	1	(1-2)	1	(1-2)	1	(1-2)	0.12
% core involvement, median (IQR)	10	(5-20)	10	(5-25)	10	(5-15)	<0.001

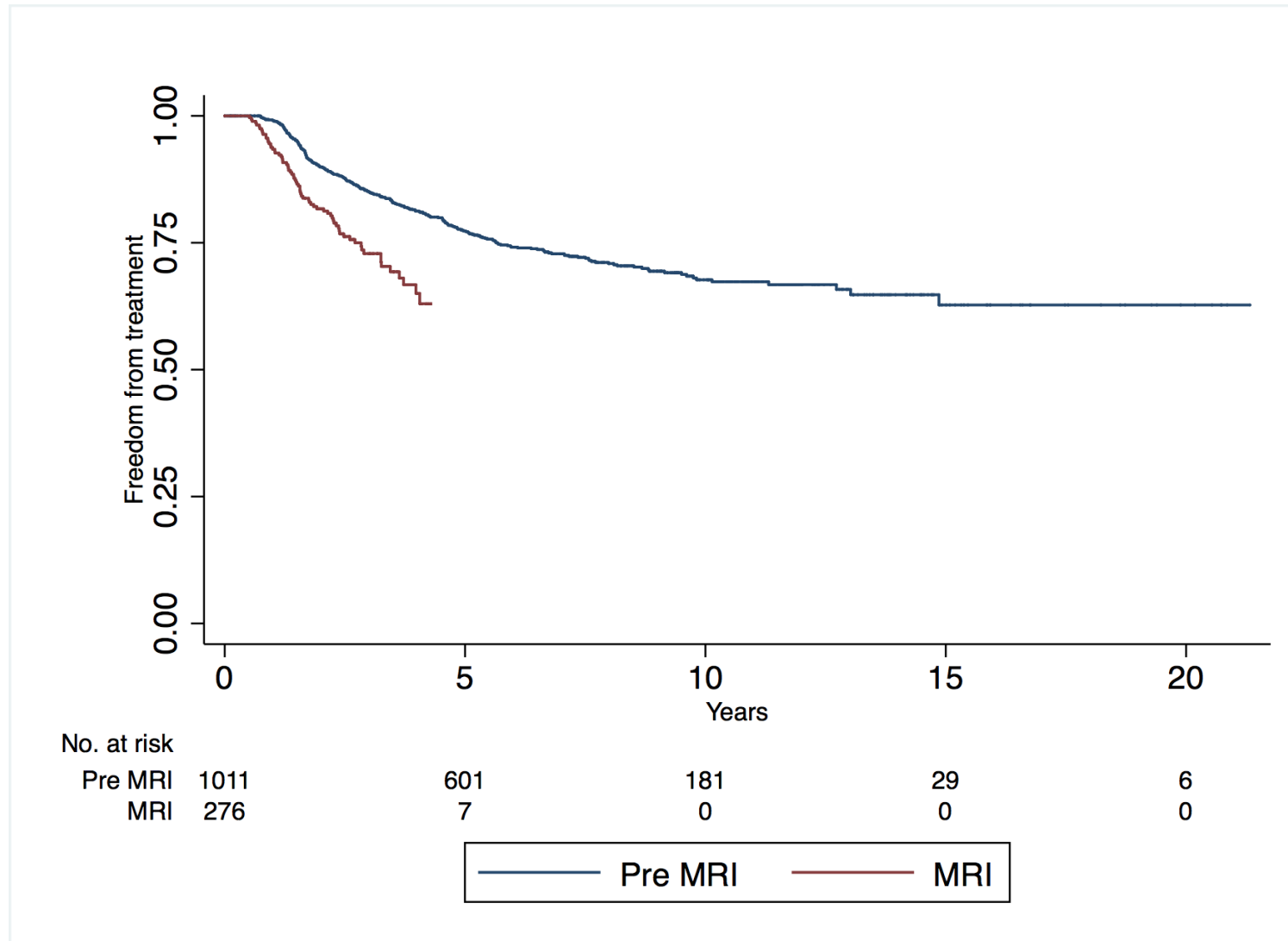
MRI era

- **87%** of men underwent at least 1 mpMRI
- Median time to mpMRI: **7 months**

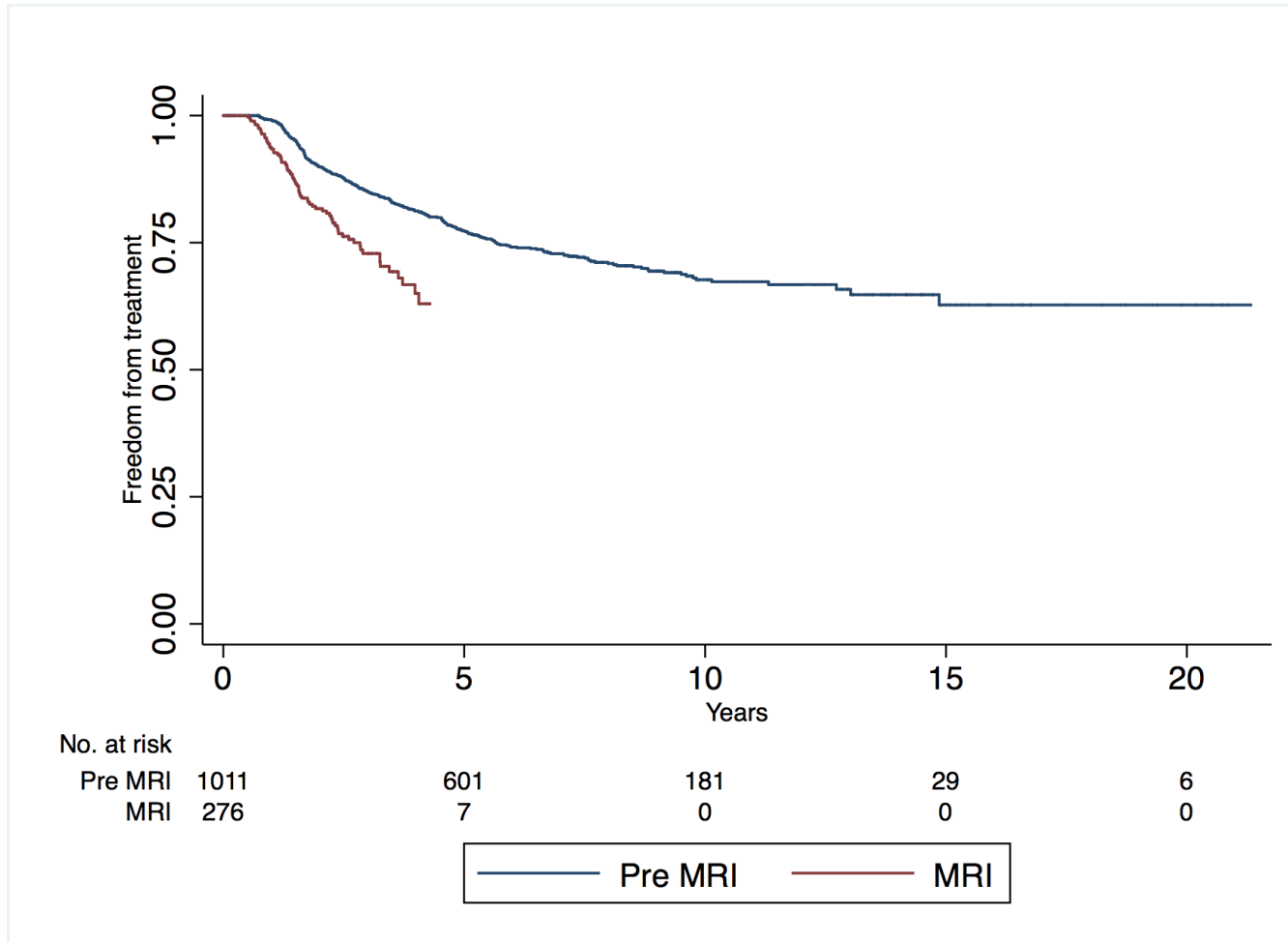
Pre-MRI era

- **37%** of men underwent at least 1 mpMRI
- Median time to mpMRI: **3.7 years**

Time to Treatment



Treatment-free Survival



Treatment at 2 years

Pre-MRI: 10%
MRI era: 18%

Treatment at 3 years

Pre-MRI: 15%
MRI era: 27%

RADICAL PROSTATECTOMY

Gleason Grade	MRI era	Pre-MRI era	Total
Group	N (%)	N (%)	
1	13 (27)	50 (35)	63
2	27 (56)	69 (50)	96
3	7 (15)	14 (10)	21
4	0	4 (3)	4
5	0	1 (1)	1
Unknown	1 (2)	1 (1)	2
Total	48	139	187

	HR	95% CI	P-value
MRI-era	1.85	1.23-2.78	0.003
Age	1.00	0.98-1.02	0.98
PSA at diagnosis	0.97	0.92-1.02	0.21
PSAD	41.1	6.64-254.66	<0.001
Gleason score			
6	1.00	Ref.	-
7	0.80	0.33-1.99	0.64
Percent positive cores	1.18	1.04-1.33	0.008
Maximum core percent	1.01	1.00-1.02	0.007

PSAD = PSA density; HR = hazard ratio; CI = confidence interval

- Inclusion of **mpMRI and fusion biopsy** in our AS protocol resulted in **earlier identification** and treatment of clinically significant prostate cancer
- These results are hypothesis generating
 - Will this earlier treatment lead to improved freedom from disease recurrence, metastasis or cancer specific survival?
 - Is this utilization of mpMRI resulting in overtreatment of indolent disease?
- Continued analyses with longer follow up times will help to answer these questions

Thank you!



MASSACHUSETTS
GENERAL HOSPITAL

HARVARD MEDICAL SCHOOL **TEACHING HOSPITAL**