definitive local treatment. Conversely, patients with 'negative' or no imaging may not receive PLND despite metastatic LNs in 2% and 9.4% of those with intermediate- and high-risk cancer at RARP.

Table 1. Pre-treatment and pathologic features for patients undergoing RARP after CT, MRI, or no abdominal imaging.

Variable	All patients N=6489	CT N=1783	MRI N=282	No Imaging N=4424	*P* value[1]
Initial PSA, mean (SD)	5.9 (12.4)	8.5 (12.7)	6.6 (8.0)	4.8 (12.3)	<.001
T1c	4556 (70.2%)	1045 (58.6%)	213 (75.5%)	3298 (74.5%)	<.001
Biopsy Gleason score					
3+3	1595 (24.7%)	172 (9.7%)	58 (20.7%)	1365 (31.0%)	<.001
3+4	2703 (41.8%)	441 (24.8%)	118 (42.1%)	2144 (48.6%)	
4+3	1109 (17.2%)	319 (18.0%)	54 (19.3%)	736 (16.7%)	
8	671 (10.4%)	531 (29.9%)	29 (10.4%)	111 (2.5%)	
9-10	385 (6.0%)	312 (17.6%)	21 (7.5%)	52 (1.2%)	
D'Amico risk group					
Low	1335 (22.0%)	106 (6.4%)	55 (21.1%)	1174 (28.3%)	<.001
Intermediate	3378 (55.6%)	600 (36.1%)	140 (53.6%)	2638 (63.5%)	
High	1366 (22.5%)	957 (57.5%)	66 (25.3%)	343 (8.3%)	
Pathologic Gleason score					
3+3	1067 (16.8%)	116 (6.7%)	36 (12.9%)	915 (21.1%)	<.001
3+4	3164 (49.8%)	626 (35.9%)	133 (47.8%)	2405 (55.5%)	
4+3	1322 (20.8%)	475 (27.2%)	75 (27.0%)	772 (17.8%)	
8	329 (5.2%)	192 (11.0%)	18 (6.5%)	119 (2.7%)	
9-10	474 (7.5%)	335 (19.2%)	16 (5.8%)	123 (2.8%)	
Pathologic T stage					
T2	4471 (69.1%)	928 (52.1%)	180 (63.8%)	3363 (76.3%)	<.001
T3a	1405 (21.7%)	522 (29.3%)	69 (24.5%)	814 (18.5%)	
T3b/T4	594 (9.2%)	331 (18.6%)	33 (11.7%)	230 (5.2%)	
Pathologic N+ Disease					<.001
N0	4658 (71.8%)	1487 (83.4%)	212 (75.2%)	2959 (66.9%)	
Nx	1606 (24.7%)	161 (9.0%)	51 (18.1%)	1394 (31.5%)	
N1	225 (3.5%)	135 (7.6%)	19 (6.7%)	71 (1.6%)	

Note: cell values are n (%), unless otherwise specified.
1. For the comparison of characteristics between no imaging, overall CT and overall MRI.

Source of Funding: Blue Cross Blue Shield of Michigan

MP18-07

THE ACCURACY AND VALIDATION OF MULTIPARAMETRIC MAGNETIC RESONANCE IMAGING (MPMRI) USING PI-RADS V2 IN DISEASE UPGRADING ON RE-BIOPSY AMONG PATIENTS WITH LOW-RISK PROSTATE CANCER ON ACTIVE SURVEILLANCE (AS) – A BRAZILIAN PERSPECTIVE.

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INTRODUCTION AND OBJECTIVES: The current selection criteria to AS is critical, it becomes even more relevant in Latin America, given the higher proportion of high risk cancers.The objective of this study is to analyze the accuracy of mpMRI using PI-RADS v2 in predicting the risk of upgrading on re-biopsy (UR) in men with low-risk PCa on AS.

METHODS: In this Institutional Review Board approved prospective study, patients with low-grade PCa selected for AS at our institution underwent mpMRI at least 6 weeks after the baseline 12-core random prostate biopsy (BSB), from March 2014 to March 2016. One blinded abdominal radiologist evaluated the exams regarding presence of dominant lesion and assigned the PI-RADS v2 score. MRI-target TRUS guided re-biopsies were done in all patients within 6-12 months after the BSB. Standardized 12-core biopsy was performed and additional cores were taken from suspicious areas on mpMRI.

RESULTS: One hundred and nine patients were included, 93 (85.3%) patients had a dominant lesion on MRI. mpMRI were classified as PI-RADS 1, 2 or 3 in 67 (61.5%) patients, and as PI-RADS 4 or 5 in 42 (38.5%) patients. UR occurred in 42 (38.5%) patients. Out of these, 39 (92.8%) had radical prostatectomy, 6 (15.4%) T2a, 24 (61.5%) T2b, and 9 (23.1%) T3a. The proportion of UR among PI-RADS categories is shown in table 1. The diagnostic performance of mpMRI for PCa upgrading after re-biopsy was summarized in table 2. Patients assigned as PI-RADS 4 or 5 presented a significantly higher risk for UR compared with patients with PI-RADS 1, 2 or 3 (73.8% vs 16.4%, $p<0.001$). Logistic regression analyses demonstrated that PI-RADS 4 or 5 remained a significant predictor of UR (OR: 37.366, $p<0.0001$).

CONCLUSIONS: We demonstrated in our population that mpMRI using PI-RADS v2 is a significant predictor for upgrading on re-biopsy in patients on AS and could be used to guide TRUS biopsy, increasing the accuracy of current clinical criteria for AS.

Table 1. Proportion of upgrading among PI-RADS categories.

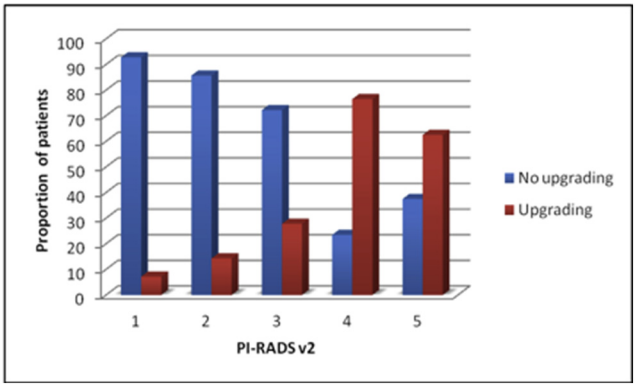

Table 2. The diagnostic performance of mpMRI for PCa upgrading after re-biopsy.

Sensitivity	0.761 (0.612,0.874)
Specificity	0.889 (0.784,0.954)
PPV	0.833 (0.686,0.930)
NPV	0.836 (0.725,0.915)
Accuracy	0.835 (0.752,0.899)

Source of Funding: The authors have no funding, or financial relationships.

MP18-08

COMPARISON OF FLUCICLOVINE (18F) PET-CT AND MRI IN DETECTION OF RECURRENT PROSTATE CANCER

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INTRODUCTION AND OBJECTIVES: To compare the diagnostic performance of PET-CT using the synthetic amino acid radiotracer fluciclovine with multiparametric magnetic resonance imaging (mpMRI) in recurrent prostate cancer.

METHODS: 24 patients with biochemical failure after non-prostatectomy definitive therapy underwent fluciclovine PET-CT and mpMRI (T2, DWI and DCE) within 29 days with blinded interpretation by expert readers. Reference standard was established via histology and clinical follow-up. Diagnostic performance was calculated for each of 2 readers for PET-CT (P1 and P2) and 2 other readers for MRI (M1 and M2). For the purpose of this analysis, equivocal interpretations were analyzed as negative.

RESULTS: In the prostate, 22 patients underwent biopsy with 13 malignant and 9 benign (2 not biopsied). Accuracy for PET was 63.6% for both readers. Accuracy for mpMR was 45.5% and 40.9% for readers M1 and M2, respectively. Overall, fluciclovine PET had higher sensitivity for both readers while mpMR had higher specificity (Figure 1a). 17 patients met the reference standard for extraprostatic disease detection. 7 of these were confirmed by histology and 10 by clinical follow-up. Accuracy for PET was 88.24% for both readers.

Accuracy for mpMR was 52.94% and 70.79% for readers M1 and M2, respectively. Overall, fluciclovine PET had higher sensitivity and specificity compared to mpMR (Figure 1b). Inter-reader agreement for fluciclovine PET was 91.6% in the prostate and 87.5% for extraprostatic disease detection. For mpMRI, inter-reader agreement was 37.5% and 75% respectively for prostate and extraprostatic disease detection.

CONCLUSIONS: Although fluciclovine PET-CT had higher sensitivity in the prostate, MRI had higher specificity for disease detection. However for extraprostatic disease, fluciclovine had higher sensitivity and specificity. Inter-reader agreement was better with fluciclovine PET-CT compared with mpMR.

Figure 1: Diagnostic Performance in the Prostate and Extraprostate Regions

Figure 1a

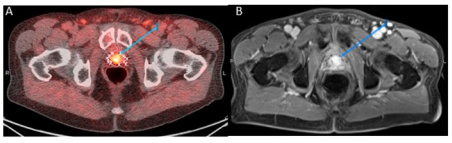
Prostate/Bed (N=22)	P1 (Fluciclovine PET-CT)	P2 (Fluciclovine PET-CT)	M1 (Multiparametric MR)	M2 (Multiparametric MR)
Sensitivity	100.00 (13/13)	100.00 (13/13)	38.46 (5/13)	15.39 (2/13)
Specificity	11.11 (1/9)	11.11 (1/9)	55.56 (5/9)	77.78 (7/9)
PPV	61.90 (13/21)	61.90 (13/21)	55.56 (5/9)	50.00 (2/4)
NPV	100.00 (1/1)	100.00 (1/1)	38.46 (5/13)	38.89 (7/18)
Accuracy	63.64 (14/22)	63.64 (14/22)	45.45 (10/22)	40.91 (9/22)

Figure 1b

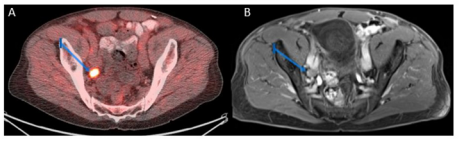
Extraprostate (N=17)	P1 (Fluciclovine PET-CT)	P2 (Fluciclovine PET-CT)	M1 (Multiparametric MR)	M2 (Multiparametric MR)
Sensitivity	87.50 (7/8)	87.50 (7/8)	50.00 (4/8)	75.00 (6/8)
Specificity	88.89 (8/9)	88.89 (8/9)	55.56 (5/9)	66.67 (6/9)
PPV	87.50 (7/8)	87.50 (7/8)	50.00 (4/8)	66.67 (6/9)
NPV	88.89 (8/9)	88.89 (8/9)	55.56 (5/9)	75.00 (6/8)
Accuracy	88.24 (15/17)	88.24 (15/17)	52.94 (9/17)	70.59 (12/17)

Figure 2: Fluciclovine and MRI Activity in (1) Prostate and (2) Extraprostate Region in a 72-year old post-EBRT, ADT and Brachytherapy with rising PSA up to 13.8

1) Concordant read in the Prostate (Positive) on PET-CT (A) and MRI (B). Prostate biopsy was negative.



2) Concordant read in a right external iliac node on PET-CT(A) and MRI(B). Biopsy was positive.



MRI also interpreted other bilateral iliac nodes and a left sacral bone lesion as positive while PET-CT interpreted these as negative (Discordant read). Biopsy was negative in these.

Source of Funding: National Institutes of Health

Blue Earth Diagnostics Limited supplied fluciclovine cassettes for the study.

MP18-09

INFLUENCE OF GA-PSMA PET/CT ON CLINICAL DECISION MAKING IN THE TREATMENT OF PATIENTS WITH PROSTATE CANCER.

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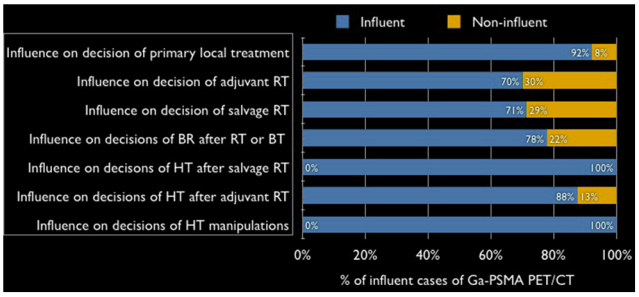
INTRODUCTION AND OBJECTIVES: Positron emission tomography (PET) with Ga-Prostate Specific Membrane Antigen (PSMA) is a new imagiological technique to stage patients with prostate cancer. We aim to present the results of our preliminary analysis of 101 consecutive patients who performed this exam in our institution, exploring its utility in primary staging and re-staging after primary local treatment and its influence on clinical decision making.

METHODS: From October 2015 to September 2016, 101 consecutive patients underwent Ga-PSMA PET/CT to stage patients before primary local treatment or, to detect recurrent or progressive disease after local treatment with curative intent in case of biochemical failure or persisting high PSA levels. All the exams were performed and read by nuclear medicine doctors. After the exam, in a multidisciplinary meeting, urologists, oncologists and radioncologists decided the treatment strategy in management of the patient. The exam was judged "influent" if its results, positive or negative, supported or determined a modification in clinical strategy.

RESULTS: Patients' characteristics are presented in table 1. Globally, Ga-PSMA PET/CT detected at least one hypermetabolic lesion in 66/101 patients (65.3%). Detection rates were 23.3%, 33.3%, %, 41.2% and 91.1% for PSA-levels between 0.2-0.5, 0.5-1, >1-2 and >2, respectively. Before the PET PSMA, 19 patients performed a pelvic MRI, 16 patients performed a bone scintigraphy, 7 patients a CT and 5 patients a PET-Choline exam. The concordance rate for positive results of Ga-PSMA PET/CT was 80% for pelvic MRI, 57.2% for bone scintigraphy, 66.7% for CT and 25% for PET-Choline exam. The main treatment influences of Ga-PSMA PET/CT on clinical decisions are presented in graphic 1. Decision-making was critically affected by PET-PSMA results in 81/101 (81.1%) patients.

CONCLUSIONS: We report our preliminary experience with Ga-PSMA PET/CT in primary staging and re-staging after primary local treatment. This exam influenced our clinical decisions in 81.2% of patients.

Table 1. - Patients´characteristics (n=101)	Value
Age, median (range)	68 (52-82)
PSA, mean+SD/median (range)	
• PSA value at the time of the exam, (ng)	6.7±10.4/2.3 (0.14-69.7)
• PSA Doubling time (months)	10.2+8/7.6 (0.7-39.1)
• PSA velocity (ng/ml/year)	5.9±9.9/1.9 (0.1-53.9)
Gleason score, median (range)	7 (5-9)
>T2 (clinical or pathological stage)	56 (55.4)
Primary local treatments, n (%)	
• Radical Prostatectomy	68 (67.3)
• EBRT	14 (13.9)
• Brachytherapy	6 (5.9)
Indications to perform Ga-PSMA PET/CT, n (%)	
• Biochemical recurrence (BR) after radical prostatectomy (RP)	35 (34.7)
• BR after RP and adjuvant or salvage radiotherapy (RT)	18 (17.8)
• BR after RT/brachytherapy	17 (16.8)
• Primary staging procedure	13(12.9)
• Re-stage before adjuvant radiotherapy	13(12.9)
• Biochemical progression under hormonotherapy (HT)	4 (4)
• BR after brachytherapy and salvage RP	1 (1)



Source of Funding: None

MP18-10

COMPARISON OF PLANAR SCINTIGRAPHY AND SINGLE-PHOTON EMISSION COMPUTED TOMOGRAPHY / COMPUTED TOMOGRAPHY (SPECT/CT) IN PREOPERATIVE IMAGING OF SENTINEL LYMPH NODES IN PENILE CANCER PATIENTS

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INTRODUCTION AND OBJECTIVES: The aim of this study was to evaluate the diagnostic value of SPECT/CT and planar lymphoscintigraphy in preoperative imaging of sentinel lymph nodes in penile cancer patients with non-palpable inguinal lymph nodes.

METHODS: Radio-labelling of sentinel nodes was performed by intradermal and peritumoral injection of 150MBq Tc-99 m-labelled nanocolloids according to the two day protocol. Image acquisition of