CUA 2023 Annual Meeting Abstracts – Poster Session 9: Oncology – Prostate (Part 2)

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MP 9.1

A qualitative and quantitative evaluation of a 28-day comprehensive, online Prostate Cancer Patient Empowerment Program in activating the engagement of patients in their survivorship care

Gabriela Ilie[1,2,3], Cody MacDonald[1], Hal Richman[1], Ricardo A. Rendon[2], Ross Mason[2], Alexandra Nuyens[1], Greg Bailly[2], David Bell[2], Nikhilesh Patil[3], David Bowes[3], Emmi Champion[4], Derek Wilke[3], Lia Massoeurs[1], Nada Hassan[1], Rob Rutledge[3]

[1]Community Health and Epidemiology, Dalhousie University, Halifax, Canada; [2]Urology, Dalhousie University, Halifax, Canada; [3]Radiation Oncology, Dalhousie University, Halifax, Canada; [4]IWK Health Centre, Halifax, Canada

Introduction: Prostate cancer is the most common form of cancer among Canadian men. Active forms of treatment, such as radical prostatectomy, radiation therapy, and hormonal therapy, are effective but can also result in physical and mental side effects, including urinary issues, sexual and intimacy problems, pain, depression, and anxiety. There is a paucity of education and empowerment interventions that address the needs of prostate cancer survivors. Existing interventions often lack the qualitative evidence needed for uptake into standard of care. In this study, we report the qualitative assessments of patients' perception of a 28-day, online, Prostate Cancer Patient Empowerment Program (PC-PEP) aimed at patient education to decrease mental distress and improve quality of life and well-being through healthy lifestyle habits.

Methods: Thirty prostate cancer patients from Halifax, Canada participated in the 28-day PC-PEP intervention in 2019. PC-PEP provided daily patient education and empowerment videos, prescribed strength and aerobic exercise, pelvic floor training, plant-based diet, stress reduction, intimacy education, social connection, and support. Quantitative exit surveys and semi-structured focus group interviews assessed perceived facilitating and impeding factors to program's adherence.

Results: The program received high endorsement from patients (9.6/10) and was reported as extremely useful (9/10) (Tables 1 and 2). Patients reported that the online format of the program made it easy to adhere to and that the program helped to address emotional distress and fragility; communication and openness regarding their cancer; physical fitness; urinary incontinence; and patient autonomy. Patient-reported challenges included commitment to work and the inability to complete program requirements while at work.

Conclusions: The 28-day PC-PEP developed through patient engagement was successful at promoting mental and physical health. Patient endorsement of PC-PEP supports integration into standard of care from day one of diagnosis.

Acknowledgements: The authors gratefully acknowledge all the patients, clinicians, and stakeholders who engaged in the research leading to this study, all the men who participated in the study, the Halifax Prostate Cancer Support Group, the Urology and Radiation Oncology Departments at QEII and Prostate Cancer Nova Scotia (Halifax and Pictou) and New Brunswick Support Groups for their help in disseminating the recruitment poster for PC-PEP to support groups; Helen Wong, Research Coordinator, students, and medical residents volunteers who helped collect the data, Brooklyn Lyons, Amy Prescott, Jeff Zahavich, Arjav Gupta, and others.

MP 9.1. Table 1. PC-PEP pre-28-days study evaluation by participating patients from Halifax, Canada (n=30)

Perceived interest in PC-PEP program after half-day PC-PEP training session on all aspects of the program held on January 11, 2019.	M=8.87, SD=1.70
Interest in PC-PEP program after half-day PC-PEP training session on all aspects of the program held on January 11, 2019	M=9.43, SD=1.01
Perceived usefulness of the review of the science behind the PC-PEP program on January 11, 2019	M=9.47, SD =0.82
Perceived usefulness of the pelvic floor aspect of PC-PEP program after half-day PC-PEP training session on January 11, 2019	M=9.66, SD=0.67
Perceived usefulness of the meditation aspect of PC-PEP program after half-day PC-PEP training session on January 11, 2019	M=8.55, SD=1.99
Perceived usefulness of the physical activity aspect of PC-PEP program after half-day PC-PEP training session on January 11, 2019	M=9.20, SD=1.03
Perceived usefulness of the connection and intimacy aspects of PC-PEP aspect of PC-PEP program after half-day PC-PEP training session on January 11, 2019	M=8.80, SD=1.38
Perceived usefulness of the entire half-day PC-PEP training session after half-day PC-PEP training session on January 11, 2019	M=9.47, SD=0.82
Perceived competence of PC-PEP team during the half-day PC-PEP training session on January 11, 2019	M=9.73, SD=0.52

MP 9.1. Table 2. PC-PEP post-28-days study evaluation by participating patients, from Halifax, Canada (n=30)

Perceived interest in the PC-PEP program three days after completion of the PC-PEP program held between January 12 to February 10, 2019	M=8.89, SD=0.99
Perceived importance of the PC-PEP program for newly diagnosed patients	M=8.54, SD=1.20
Perceived usefulness of the PC-PEP program from day 1 of diagnosis from the patients' point of view	M=9.61, SD=0.57
Overall usefulness of the PC-PEP program for the patient	M=9.00, SD =1.19
Perceived usefulness of the pelvic floor aspect of the PC-PEP program	M=8.75, SD=1.35
Perceived usefulness of the meditation aspect of the PC-PEP program	M=7.46, SD=2.05
Perceived usefulness of the physical activity aspect of PC-PEP program	M=8.75, SD=1.35
Perceived usefulness of the connection and intimacy aspect of PC-PEP program	M=8.00, SD=1.25
Perceived usefulness of the daily video and text messages sent via email to all patients over the duration of the PC-PEP program	M=9.15, SD=1.75
Perceived competence of PC-PEP program leads	M=9.89, SD=0.32
Likelihood to recommend PC-PEP to other men diagnosed with prostate cancer	M=9.79, SD=0.42

MP 9.2

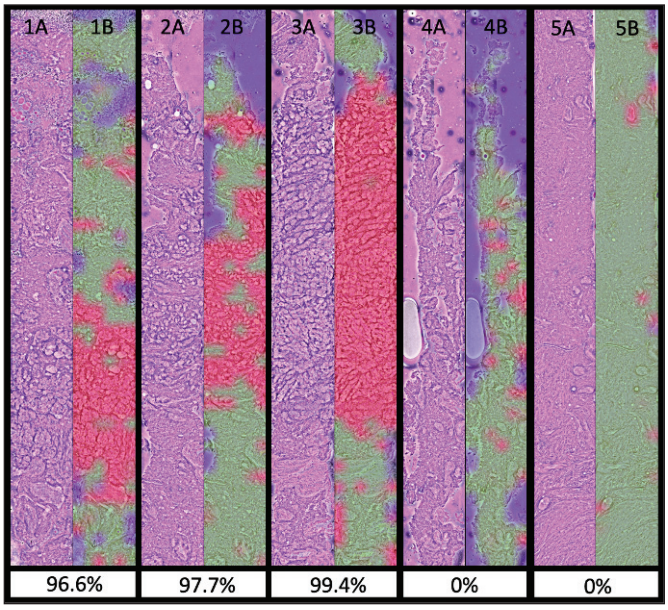
Artificial intelligence interpretation of stimulated Raman histology can provide near real-time intraoperative margin assessment during partial gland ablation of prostate cancer

Miles P. Mannas[1], Jonathan Suderman[1], Fang-Ming Deng[2], Adrian Ion-Margineanu[3], Christian Freudiger[3], James Wysock[4], Daniel A. Orringer[5], Samir S. Taneja[4]
[1]Department of Urologic Sciences, University of British Columbia, Vancouver, Canada; [2]Department of Pathology, NYU Langone Health, New York, United States; [3]Invenio Imaging, Santa Clara, United States; [4]Department of Urology, NYU Langone Health, New York, United States; [5]Department of Neurosurgery, NYU Langone Health, New York, United States

Introduction: In-field recurrence after partial gland ablation of prostate cancer (PCa) remains an ongoing concern. Stimulated Raman histology (SRH) is a novel microscopic technique allowing real-time interpretation of label-free, high-resolution microscopic images of unprocessed tissue. We evaluated surgical team and AI interpretation of SRH for real-time pathologic feedback in the planning and treatment of PCa with partial gland cryosurgical ablation (PCGA).

Methods: Twelve subjects underwent lesion-directed prostate mapping biopsies during PGCA with 4-7 prostate biopsies from: tumor (1), 1cm margin from MRI lesion (2), and treatment margin during PGCA (1–4). Biopsies were immediately scanned in a SRH microscope using two Raman shifts. Real-time image interpretation was performed by the surgical team. An Inception-ResNet-v2 convolutional neural network (CNN) was used to interpret prostate biopsy SRH to assign a diagnosis: benign or PCa. The cores were processed and H&E-stained as per normal pathologic protocols and used for ground truth pathologic assessment. Change in treatment and diagnostic accuracy for detection of PCa on SRH relative to final pathology was tested for both the surgical team and CNN interpretation.

Results: Surgical team procedural interpretation of SRH revealed a 98.1% accuracy, 100% sensitivity, and 97.3% specificity for identification of PCa. CNN interpretation of SRH revealed identical results to the surgical team for identification of Gleason grade group >1 PCa. When considering any PCa, the diagnostic characteristics of the CNN showed an accuracy of 94.6%, 88.2% sensitivity, and 97.4% specificity. SRH interpreted by the surgical team resulted in three subjects' treatment modification after PCa was visualized lateral to an expected MRI-predicted tumor margin or at an untreated cryosurgical margin An example is shown in Figure 1.



MP 9.2. Figure 1. Sample 1–5 represent simulated Raman histology (SRH) of fresh prostate mapping biopsies obtained during focal cryosurgical ablation of prostate cancer. Samples A represent SRH, while samples B represent SRH with artificial intelligence color overlay. Percentage under each image represents the AI tumor prediction.

Conclusions: SRH interpreted by both a surgical team and artificial intelligence can improve tumor modeling, beyond MRI and biopsy findings, during the conduct of PCa PGCA, resulting in real-time margin adjustment to maximize tumor destruction. Further testing is required to assess the effects on oncological outcomes.

MP 9.3

Examining the impact of personality traits on psychological distress in patients undergoing a comprehensive Prostate Cancer Patient Empowerment Program (PC-PEP)

Charlie Gillis[1], Gabriela Ilie[2], Ricardo A. Rendon[1], Ross Mason[1], Cody MacDonald[2], Mike Kucharczyk[3], Nikhilesh Patil[3], David Bowes[3], Greg Bailly[1], David Bell[1], Joseph Lawen[1], Michael Ha[3], Derek Wilke[3], Peter Massaro[1], Jeff Zahavich[4], George Kephart[2], Robert Rutledge[3]
[1]Department of Urology, Dalhousie University, Halifax, Canada; [2]Department of Community Health and Epidemiology, Dalhousie University, Halifax, Canada; [3]Department of Radiation Oncology, Dalhousie University, Halifax, Canada; [4]Department of Kinesiology, Dalhousie University, Halifax, Canada

Introduction: Personality traits are known to be predictors for mental distress in men diagnosed with prostate cancer, yet little is known about how this factor impacts distress during treatment. This study investigates the relationship between personality traits and psychological distress for localized prostate cancer patients undergoing a standardized home physical, mental, and social support intervention, the Prostate Cancer-Patient Empowerment Program (PC-PEP).

Methods: Patients diagnosed with localized prostate cancer (n=128) undergoing treatment with either radiotherapy ± ADT or surgery were randomized in a crossover design to receive a six-month, online, home-based physical, mental, and social support intervention. For the first six months, 66 men were randomized to receive the PC-PEP intervention, while 62 men were randomized to a control arm receiving the standard of care. The control group then received the PC-PEP intervention for the remaining six months, while the intervention group crossed over to receive standard of care. The intervention consisted of daily emails with video instructions providing education, mental health empowerment exercises, physical rehabilitation, dietary recommendations, stress reduction, and social support. The primary outcome was nonspecific psychological distress as measured by the Kessler Psychological Distress Scale (K10) at baseline, six, and 12 months. Clinical, demographic, and social variables were collected. Personality was assessed using the 10-item Personality Inventory (TIPI) to assess extraversion, agreeableness, conscientiousness, emotional stability, and openness to experiences.

Results: At baseline, a linear regression model established personality traits (low agreeableness OR 0.30, 95% CI 0.59–1.5; and neuroticism OR 0.28, 95% CI0.15–0.54) predicted psychological distress. At six months, a logistic regression model demonstrated patients in the waitlist-control group had 3.59 (95% CI 1.12–11.51) times higher odds (or ORa 4.31, 95%CI 1.23–15.08 controlling for personality traits) for non-specific-psychological-distress (K≥20) than men who received the PC-PEP intervention, while controlling for prognostic covariates and personality traits. There was no identified association between treatment received for prostate cancer and personality type (Figure 1, Tables 1, 2).

Conclusions: A multifactorial, standardized Patient Empowerment Program significantly reduced the risk of psychological distress throughout prostate cancer treatment. Despite affecting the level of psychological distress in men facing a diagnosis of prostate cancer, personality traits are not found to be associated with psychological distress throughout the treatment of this disease.

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MP 9.3. Table 1. Sample characteristics at baseline between the Prostate Cancer- Patient Empowerment Program (PC–PEP) intervention and wait–list control groups, among 128 prostate cancer patients undergoing curative–intent treatment in Nova Scotia, Canada

	PC-PEP intervention (n=66)	Waitlist control (n=62)
Age (yr)	66, 66 (60–70)	62, 68 (61–72)
Body mass index	66, 28 (26–31)	62, 28 (26–30)
Household oncome at baseline, >30 000 CAD/ past year	54, 82%	52, 84%
Race, White	60, 91 %	61, 98%
Education, university or above	31, 47%	37, 60%
Employed (part of full-time)	22, 33%	23, 37%
Relationship status (married/currently in a relationship)	59, 89%	61, 98%
Screening positive for non-specific psychological distress and need for clinical treatment (K10 ≥20)	9, 18%	11, 14%
Risk category (RP+primary RT±HT)[a]		
Low	1, 1.5%	2, 3.2%
Intermediate	42, 75%	40, 67%
High	13, 23%	18, 30%
PSA (ng/ml)	10, 8 (6–9)	2, 8 (6–13)
Post-COVID[b] enrolment	51, 77%	50, 81%
Prescribed ADT	27, 41%	21, 34%
Treatment modality		
Radical prostatectomy	29, 44 %	33, 53%
Radiation therapyc	27, 41%	27, 44%
Radiation therapy (salvage)[c]	10, 15%	2, 3.2%
Charlson Comorbidity Index	66, 2 (2–3)	62, 3 (2–3)
Self-identified as cigarette smoker	5, 7.6%	3, 4.8%
Time between randomization and treatment (days)	66, 61 (34–99)	62, 73 (29–101)
Intake of prescribed medication for depression, anxiety or both at the time of entering the trial	12, 18%	7, 11%
Absence of cancer recurrence at 6 months post-randomization	63, 96%	58, 94%
Extraversion	66, 4.5 (3–6)	62, 4 (3–5)
Agreeableness	66, 5.3 (4.3–6.3)	62, 5.5 (4.5–6.5)
Conscientiousness	66, 6 (5–7)	62, 6 (5–7)
Emotional stability/neuroticism	66, 5.8 (4.3–7.3)	62, 5.8 (4.3–7.3)
Openness to experience	66, 5.5 (4.5–6.5)	62, 5 (3.5–6.5)

Note: Summary statistics are presented as n, median, and interquartile range, or n (%) for categorical data. There were no statistically significant differences between the two arms at baseline for any of the PROs, sociodemographic or medical covariates. [a]National Comprehensive Cancer Network (NCCN). [b]The COVID pandemic restrictions began in the Canadian Maritime Provinces: Nova Scotia, New Brunswick, and Prince Edward Island on March 16, 2020. [c]The radiation therapy and salvage radiation groups were pooled together to allow for meaningful comparisons.

MP 9.4

Factors predicting prolonged operative time for individual surgical steps of robot-assisted radical prostatectomy (RARP): An analysis of the largest Canadian RARP database

Tawfik Elsherbini[1], Adel Arezki[2], Iman Sadri[2], Félix Couture[5], David-Dan Nguyen[3], Pierre Karakiewicz[4], Kevin C. Zorn[4]

[1]Faculty of Medicine, Université de Montréal, Montreal, Canada; [2]Division of Urology, McGill University, Montreal, Canada; [3]Division of Urology, University of Toronto, Toronto, Canada; [4]Division of Urology, Centre Hospitalier de l'Université de Montréal (CHUM), Montreal, Canada; [5]Division of Urology, Centre Hospitalier Universitaire de Sherbrooke, Sherbrooke, Canada

Introduction: With the backlog of surgical procedures in Canadian hospitals catalyzed by the recent COVID-19 pandemic and healthcare staff shortages, it is important for urologists to foresee longer surgery duration using patient-specific factors in order to facilitate operating room (OR) scheduling and management. To our knowledge, this is the largest Canadian study that highlights the pre-operative patient characteristics that predict prolonged operative time for the individual steps of the robot-assisted radical prostatectomy (RARP) procedure.

Methods: All patients who underwent RARP by our experienced robotic surgeon between 2007 and 2019 with one-month followups were eligible for the study. The procedure was divided into 10 steps. Baseline patient characteristics and the duration of individual steps were recorded. Multivariate analysis was performed to identify patient characteristics that predicted prolonged individual steps.

Results: A total of 1387 patients were included in this study. In multivariable analysis, larger prostate volumes predicted longer posterior dissection (odds ratio [OR] 1.05, p<0.01), bladder neck division (OR 1.07, p<0.01), pedicle control (OR 1.06, p<0.01), urethral division (OR 1.04, p<0.01), and vesico-urethral anastomosis (VUA) (OR1.09, p<0.01). The presence of a median lobe predicted longer bladder neck division (OR 14.86, p<0.01). Conversely, BMI and patient age were not factors predicting longer operative time for any step of the RARP procedure.

Conclusions: Our findings suggest that larger prostate volumes and the presence of a median lobe prolong specific steps of the RARP procedure and are therefore characteristics that should be considered when estimating operative time. In contrast to previous findings, BMI was not a predictor of longer surgical steps, which may be explained by its limited ability to predict pelvic visceral fat (PVF).

MP 9.3. Table 2. Multiple logistic regression assessing non-specific clinical psychological distress and need for treatment (≥20 on K10) among 128 prostate cancer patients undergoing curative-intent treatment in Nova Scotia, Canada

(A) At 6 months by group (PC-PEP vs. waitlist control) while controlling for prognostic covariates without personality traits

	Presence of psychological distress and need for clinical treatment at 6 months, aOR (95% CI)	p
Full cohort analysis[a] (N=128)		0.001
Group		
PC-PEP intervention	1.0 Reference	
Waitlist control	3.59 (1.12–11.51)	0.031
Psychological distress (K10) baseline	1.20 (1.08–1.34)	<0.001

(B) At 6 months by group (PC-PEP vs. waitlist control) while controlling for prognostic covariates with personality traits

	Presence of psychological distress and need for clinical treatment at 6 months, aOR (95% CI)	p
Full cohort analysis[a] (N=128)		0.001
Group		
PC-PEP intervention	1.0 Reference	
Waitlist control	4.31 (1.23–15.08)	0.022
Psychological distress (K10) baseline	1.30 (1.11–1.53)	0.001

Note: [a]Analyses are controlled for sum scores for psychological distress at baseline. [b]Analyses are controlled for sum scores for psychological distress at baseline for the early group, and sum scores for psychological distress at 6 months for the late waitlist control group. Models (A and B) included the following prognostic covariates: patient age, treatment modality (surgery vs. radiation), relationship status (not in a relationship vs. currently in a relationship), Charlson Comorbidity Index, prescribed medication for depression, anxiety, or both (yes vs. no), and days between randomization and treatment. Model B also controlled for extraversion, agreeableness, conscientiousness, emotional stability/neuroticism, and openness to experience.

MP 9.5

The safety and feasibility of a novel prostate biopsy technique using MRI-fused cone beam CT-guided prostate biopsy through a transgluteal approach: A randomized, crossover design trial

Jason P. Izard[1], Michael Leveridge[1], Tessa Ladner[1], Alexandre Menard[2]
[1]Urology, Kingston Health Sciences/Queen's University, Kingston, Canada; [2]Radiology, Kingston Health Sciences/Queen's University, Kingston, Canada

Introduction: Accurate detection and grading of prostate cancers is imperative to provide optimal treatment strategies. MRI has been showed to be useful in the detection of clinically significant prostate cancers. We sought to evaluate the feasibility and tolerability of our novel method of MRI-fused cone beam CT-guided prostate (MRI-CT) biopsy done through a transgluteal approach compared to transrectal ultrasound-guided prostate biopsy (TRUSP).

Methods: Participants with a PI-RADS 4 or 5 lesion on mpMRI and a previous TRUSP biopsy negative for clinically significant cancer (defined as Gleason ≥7) were randomized to either MRI-CT biopsy or TRUSP. Patients then served as their own controls and crossed over to receive the alternative biopsy technique. Detection of any grade of cancer and clinically significant prostate cancer was recorded. Tolerability was assessed with the Universal Pain Assessment Tool. Patient comfort and preference ratings for the two biopsy techniques were assessed via seven-point Likert scales. Immediate and 30-day complication rates were recorded.

Results: Twenty patients were randomized with a median age of 68 (52–77), a median PSA of 9.9 (0.7–32.6), and had undergone a median of one (1–6) previous biopsies. Prostate cancer was detected in 65% (13/20) of patients using MRI-CT-guided prostate biopsy compared to 60% (12/20) using TRUSP biopsy. MRI-CT-guided prostate biopsy detected clinically significant prostate cancer in 50% (10/20) of patients compared to only 30% (6/20) of patients undergoing a traditional TRUSP biopsy. Assessments of pain (p=0.03), comfort (p<0.001), and preference (p<0.001) between biopsy techniques were all statistically superior with the MRI-CT technique. There was one hospital admission due to hematuria requiring CBI and one emergency room visit due to urinary retention.

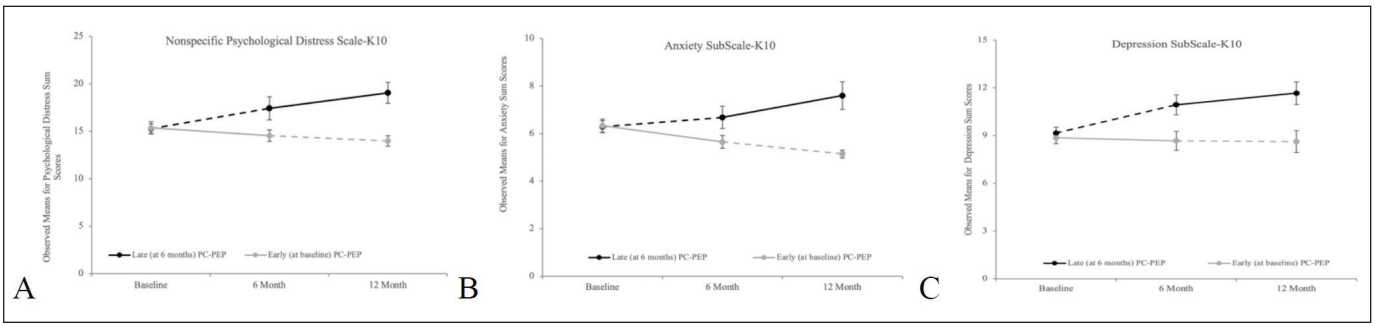
Conclusions: MRI-CT biopsy is safe and technically feasible. It was able to detect more clinically significant prostate cancer with less pain and discomfort compared than TRUSP. These data warrant larger, prospective trials.

MP 9.6

Intraprostatic and serum statin concentrations of different types and doses of statins in patients undergoing radical prostatectomy

Julian Chavarriaga[1], Najia Khurram[1], Linda Penn[2], Diandra Zipinotti dos Santos[2], Eric X. Chen[3], Robert J. Hamilton[1]
[1]Division of Urology, Department of Surgical Oncology, University Health Network & University of Toronto, Toronto, Canada; [2]Department of Medical Biophysics, University of Toronto, Toronto, Canada; [3]Department of Hematology & Oncology, University Health Network & University of Toronto, Toronto, Canada

Introduction: Statins appear to reduce PSA levels, inhibit prostate cancer progression, and reduce the risk of advanced/fatal disease. The exact mechanism is unknown. It is not known whether statins can accumulate in prostate tissue in sufficient concentrations. We assessed the comparative intra-prostatic and serum statin concentrations among different types and doses of statins in patients undergoing radical prostatectomy (RP).



MP 9.3. Figure 1. Observed K10 non-specific psychological distress, K10-depression, and K10-anxiety for the early vs. late intervention groups at baseline, 6, and 12 months among 128 curative PCa patients treated in NS, Canada.

Methods: We retrospectively reviewed RP patients from 1993–2019. Archival blood was collected within 24 days (median 16 days) prior to surgery, and tissue samples on the day of surgery. Statin concentration was measured by high-performance liquid chromatography/mass spectrometry. The primary objective was to compare intraprostatic and serum concentrations of lipophilic atorvastatin (ATV) vs. hydrophilic rosuvastatin (RSV). Secondary objectives included comparing intraprostatic and serum statin concentration between high (ATV-HD) (40–80 mg) vs. low-dose (ATV-LD) (10–20 mg), and high (RSV-HD) (20–40 mg) vs. low-dose (RSV-LD) 5–10 mg.
Results: Eighty patients were included in our analysis (41 RSV and 39 ATV). Compared to ATV, RSV was more often measurable in the prostate (53.6% vs. 41%) and with higher median concentration (3.61 vs. 0.96 ng/g, p<0.001). We also observed dose-dependent tissue concentrations: median 1.25 vs. 0.79 ng/g for ATD-HD vs. ATV-LD (p=0.22) and 5.21 vs. 1.7 ng/g for RSV-HD vs. RSV-LD (p=0.005). Statins were measurable in the serum of 94.4%, 71.4%, 90%, and 85.7% of patients receiving ATV-HD, ATV-LD, RSV-HD, and RSV-LD, respectively. The median concentration in the serum of patients receiving RSV (8.89 ng/ml) was higher than for ATV (5.56 ng/ml).
Conclusions: We observed that orally administered statins accumulate in prostate tissues in a dose-dependent manner, thus supporting their potential role in prostate cancer inhibition. Interestingly and contrary to a priori hypotheses, hydrophilic RSV appeared in higher concentrations than lipophilic ATV. Our results may help inform future clinical trials involving statin medications.

MP 9.7

Implementation of multiparametric magnetic resonance imaging in the prostate cancer diagnostic trajectory for biopsy-naive patients: A population-based, single-center study

Yves Fradet[1], Marc Rhainds[2], Geneviève Asselin[2], Mélanie Tremblay-Boily[1], Alice Nourissat[2], Maxime Rioux[3], Étienne Ouellet[3], Thierry Dujardin[1], Yves Caumartin[1], Louis Lacombe[1], Jonathan Cloutier[1], Michele Lodde[1], Rabi Tiguert[1], Paul Toren[1], Fannie Morin[1], Annie-Claude Blouin[1], Vincent Fradet[1], Annie Imbeault[1], Geneviève Nadeau[1], Michel Bureau[1], Frédéric Pouliot[1], Jean-Francois Audet[1], Marie-Pier Deschênes-Rompré[1], Frédéric Soucy[1], Sophie Ramsay[1]

[1]Department of Surgery/Urology, CHU de Québec-Université Laval, Quebec, Canada; [2]HTA Unit, CHU de Québec-Université Laval, Quebec, Canada; [3]Department of Radiology, CHU de Québec-Université Laval, Quebec, Canada

Introduction: Several guidelines, including those from Quebec INESS, recommend multiparametric magnetic resonance imaging (mpMRI) before an initial prostate biopsy. Their application by primary care physicians to all patients with high PSA would overwhelm already difficult access to MRI in Quebec. The objective of this study was to assess the impact of implementing a new pathway requiring a urology consultation before mpMRI and compare prostate cancer (PCa) diagnosis to a prior approach of systematic biopsies (Bx) in most patients.
Methods: Since 2016, prostate Bx for all men from the Quebec region are performed at a single center. We compared PCa diagnoses for the 629 men who underwent an initial systematic TRUS Bx in 2017, when prostate mpMRI was not available, to that of men evaluated with the new care pathway between September 2021 and June 2022. Men recommended Bx after mpMRI had both targeted 3DTRUS-MRI fusion Bx and systematic Bx. Clinically significant PCa (csPCa) was defined as grade group (GG) ≥2.
Results: In 2021–22, 1340 patients with high PSA or suspicious prostate examination were referred to urology: 706 (53%) were recommended PSA followup in 6–12 months, 254 (19%) were referred directly to systematic Bx because of high suspicion of PCa or perceived undue delays to obtain mpMRI, and 380 (28 %) to mpMRI. Table 1 summarizes the PCa diagnoses in the two cohorts. Overall, GG ≥2 PCa was diagnosed in 222/596 (37%) patients referred to mpMRI or systematic Bx in the 2021–22 cohort compared to a slightly higher (44%) 274/629 patients in the 2017 cohort (p<0.05). The new diagnostic pathway prevented 212/596 (36 %) patients from having biopsies.
Conclusions: The urology evaluation of all patients with suspicion of PCa resulted in only 28% of patients being referred for mpMRI. The slight reduction of patients diagnosed with csPCa with the new pathway may be due in part to the difficult access to mpMRI previously shown to increase the identification of more csPCa than systematic Bx alone.

MP 9.7. Table 1. Prostate cancer detection rates

	Prospective cohort (2021–2022) (n=1340)			Retrospective cohort (2017) (n=629)
	Patients referred to mpMRI* (n=345)	Patients referred to systematic biopsy* (n=251)	PSA followup (n=706)	
Biopsy, n (%)	133 (39)	251 (100)	–	629 (100)
No lesion or PI-RADS <3 (n=168)	14 (8)			
PI-RADS 3 (n=53)	28 (53)			
PI-RADS 4 or 5 (n=124)	91 (73)			
PCa, n (%)	98 (74)	186 (74)	–	355 (56)
Grade group 1	21 (16)	41 (16)		81 (13)
Grade group ≥2	77 (57)	145 (58)		274 (44)

*To date, 251/254 (99%) patients referred to systematic biopsy have had biopsies, whereas 345/380 (91%) of patients referred to mpMRI have had a mpMRI.

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MP 9.8

Clinical validation of optimized neural network risk models to predict grade group 2 and above prostate cancer and avoid unneeded biopsies

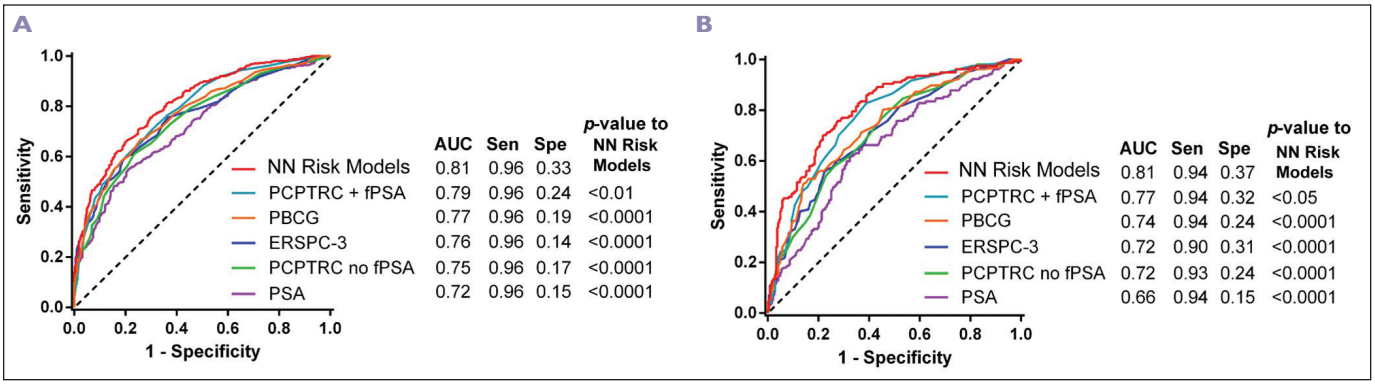
Robert J. Paproski[1], Desmond Pink[1], Catalina Vasquez[1], Adrian Fairey[2], M. Eric Hyndman[3], Armen Aprikian[4], Adam Kinnaird[2], Christopher Wallis[5], Perrin H. Beatty[1], Christian P. Pavlovich[6], John D. Lewis[7]

[1]Nanostics Inc., Edmonton, Canada; [2]Department of Surgery, University of Alberta, Edmonton, Canada; [3]Department of Surgical Oncology, University of Calgary, Calgary, Canada; [4]Department of Surgery, McGill University, Montreal, Canada; [5]Department of Surgery, University of Toronto, Toronto, Canada; [6]James Buchanan Brady Urological Institute and Department of Urology, Johns Hopkins University School of Medicine, Baltimore, United States; [7]Department of Oncology, University of Alberta, Edmonton, Canada

Introduction: Prostate cancer (PCa) is the most diagnosed cancer in European men. Most men have low-risk PCa, while about 7% have high-risk PCa. PSA screening for PCa has low specificity for grade group (GG) ≥2 PCa, making the decision to go for a prostate biopsy difficult. The aims of this study were to validate the accuracy of improved neural network risk models to predict GG ≥2 PCa for men with high PSA using real-world samples and data, as well as determine the value of each predictor in the risk models.
Methods: Participants recruited from clinical sites in Canada and the U.S. were men aged 40–75 years with PSA ≥3 ng/mL and a biopsy referral. Risk models to predict PCa included PSA, free PSA, and other useful clinical features and were fit using data from two sites (train cohort), while fixed models were validated on a different site (validation cohort). Prediction models were created using neural networks to generate the patient's risk score. To compare the risk model test with PSA, the high-grade cancer detection sensitivity was fixed, and the number of biopsies needed to achieve that sensitivity was evaluated. Threshold values for the training cohort were determined using at least 95% sensitivity and maximum specificity.
Results: Compared to other risk calculators and PSA, the optimized neural network risk models test had the highest area under the curve for predicting GG ≥2 PCa on the validation cohort (Figure 1). At an 18.6% threshold, this test provided 94% sensitivity, 37% specificity, 49% positive predictive value, and 90% negative predictive value for predicting GG ≥2 PCa. If a biopsy was performed only when the tests' risk score prediction was ≥18.6% for GG ≥2 PCa, about 36.9% of unnecessary biopsies could be avoided (Table 1).
Conclusions: This neural network risk model showed the highest accuracy for predicting biopsy results in the pre-MRI setting. Accurate risk models pre-

MP 9.8. Table 1. Biopsies avoided with GG ≥2 PCa threshold of 18.6

Threshold	GG ≥2 PCa found		GG ≥2 PCa missed		Biopsies avoided		Unnecessary biopsies avoided	
	n	%	n	%	n	%	n	%
10	153	97.5	4	2.5	35	8.7	31	12.7
15	151	96.2	6	3.8	63	15.7	57	23.4
18.6	147	93.6	10	6.4	100	24.9	90	36.9
20	147	93.6	10	6.4	112	27.9	102	41.8
25	143	91.1	14	8.9	136	33.9	122	50



MP 9.8. Figure 1. Optimized neural network models (NN risk models) for predicting grade group (GG) ≥2 prostate cancer. (A) Train cohort (n=1037). (B) Validation cohort (n=401). Compared to other risk calculators and PSA, NN risk model provided the highest AUC for predicting GG ≥2 PCa with the following ranking by AUC on the validation cohort: NN risk model (0.81), PCPTRC 2.0 with free PSA (0.77, p<0.05), PBCG (0.74, p<0.0001), ERSPC-3 (0.72, p<0.0001), PCPTRC 2.0 without free PSA (0.72, p<0.0001), and PSA (0.66, p<0.0001).

dicting prostate biopsy results would improve selection of men needing MRI and prostate biopsies, thereby lowering healthcare costs and minimizing patient adverse events.

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MP 9.9

Prostate-specific antigen screening and prostate biopsy experiences for men at risk of prostate cancer: Results of the Biomarkers and Prostate Cancer Prevention and Environment Study

Roxane Tourigny[1,2], Karine Robitaille[1,2], Vanessa Bussières[1], Fred Saad[3], Michel Carmel[4], Armen Aprikian[5], Yves Fradet[1], BIOCaPPE-GRePEC Network[1,3,4,5], Vincent Fradet[1,2]

[1]Centre de recherche du CHU de Québec-Université Laval, Quebec, Canada; [2]Centre Nutrition, Santé et Société (NUTRISS) and Institute of Nutrition and Fonctional Food (INAF), Université Laval, Quebec, Canada; [3]Centre de recherche du CHUM, Montreal, Canada; [4]Centre de recherche du CHUS, Sherbrooke, Canada; [5]Institut de recherche du CUSM, Montreal, Canada

Introduction: Prostate cancer (PCa) is the most common non-skin malignancy among Canadian men. Prostatic-specific antigen (PSA) testing is performed to screen the disease, and a prostate biopsy (PB) is required to confirm the diagnosis. These procedures can have adverse effects, but not much is known on how men at risk of PCa experience screening and diagnosis procedures, and no study has been performed in Canada. Here, we aimed at describing the experience of men at risk of PCa with PSA testing and PB.

Methods: PCa screening and diagnosis procedure experiences was collected for 2053 men at risk of PCa participating in a prospective, multicenter, observational study called BIOCaPPE, aiming to evaluate the impact of various biomarkers associated with lifestyle habits on PCa incidence. Participants had either 1) a first negative PB in the past six months; or 2) a PSA level from 2.5–10 ng/mL but no previous PB.

Results: Most participants (55.0%) underwent PSA testing to screen for PCa despite no apparent prostate symptoms, from which 77.3% were prescribed by a family physician; 72.3% had a previous discussion with a physician on the benefices and harms of PSA testing; and 83.1% saw their experience with PSA testing as positive. For participants who underwent a PB, 52.9% decided to undergo this procedure following a recommendation from a urologist; 67.3% were under local anesthesia during the procedure; 79.7% had mild to moderate pain and 73.0% had mild to moderate anxiety. Most men (89.2%) had at least one side effect following the biopsy. The most common side effects were blood in the sperm (79.6%), prostatic pain (22.9%), and bleeding (16.4%). Overall, 79.2% saw their experience with PB as positive.

Conclusions: Men at risk of PCa are generally positive about the PCa screening and diagnostic procedures, even if the majority had at least one side effect following the PB. This is the first description of PSA testing and PB experiences in a Canadian cohort of men at risk of PCa.

MP 9.10

Major adverse cardiovascular event incidence after androgen deprivation therapy initiation by drug class

E. David Crawford[1], Stuart Atkinson[2], Deborah Boldt-Houle[2], Zuzanna Szmukier[3]
[1]Urology, University of California San Diego - Koman Family Outpatient Pavilion, La Jolla, United States; [2]Medical Affairs, Tolmar Pharmaceuticals, Inc., Bufallo Grove, United States; [3]Medical Affairs, Tolmar Pharmaceuticals, Inc, Mississauga, Canada

Introduction: Prostate cancer (PCa) patients treated with androgen deprivation therapy (ADT) may experience major adverse cardiovascular events (MACE). There is some debate as to how much of MACE is caused by ADT itself. A recent 48-week study of PCa patients on ADT reported MACE in 2.9% and 6.2% of patients treated with a GnRH antagonist (relugolix) and an LHRH agonist, respectively; however, a separate randomized clinical trial found no difference in MACE rates at one year between patients on degarelix vs. leuprolide. Additionally, a recent study using a large real-world dataset with >50 000 PCa patients over approximately two years found no difference in CV risk following treatment with GnRH agonists and antagonists. This study aimed to evaluate MACE incidence after ADT initiation for LHRH agonists and GnRH antagonist by drug.

Methods: Analyses of U.S. electronic medical records (2010–2020) of PCa patients(n=45 059) receiving LHRH agonist and antagonist injections were conducted to evaluate MACE incidence after ADT initiation by drug class. Exclusion criteria included lack of ADT initiation date or myocardial infarction (MI)/stroke within six months before ADT initiation. MACE was defined as MI, stroke, and death from any cause. Kaplan-Meier MACE event-free survival curves were constructed, and Cox regression was used to compare MACE hazard rates between patients on agonists vs. antagonists.

Results: Both the unadjusted and adjusted incidences of MACE were lower for men treated with LHRH agonists compared to the GnRH antagonist (unadjusted HR 0.7, 95% CI 0.6, 0.7, p<0.001; adjusted HR 0.6, 95%CI 0.5, 0.7, p<0.001) (Figure 1).

Conclusions: Our analysis found that MACE incidence was lower in patients on LHRH agonists vs. GnRH antagonist; however, there is potentially a selection bias that higher-risk patients may have preferentially received the antagonist, as well as other residual confoundings. Our data analysis over the most recent decade, with approximately 45 000 PCa patients, is likely an accurate reflection of the real world.

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MP 9.11

Racial disparities in treatment patterns and outcomes in castrate-resistant prostate cancer patients: Real-world data from a regional cancer center in Ontario

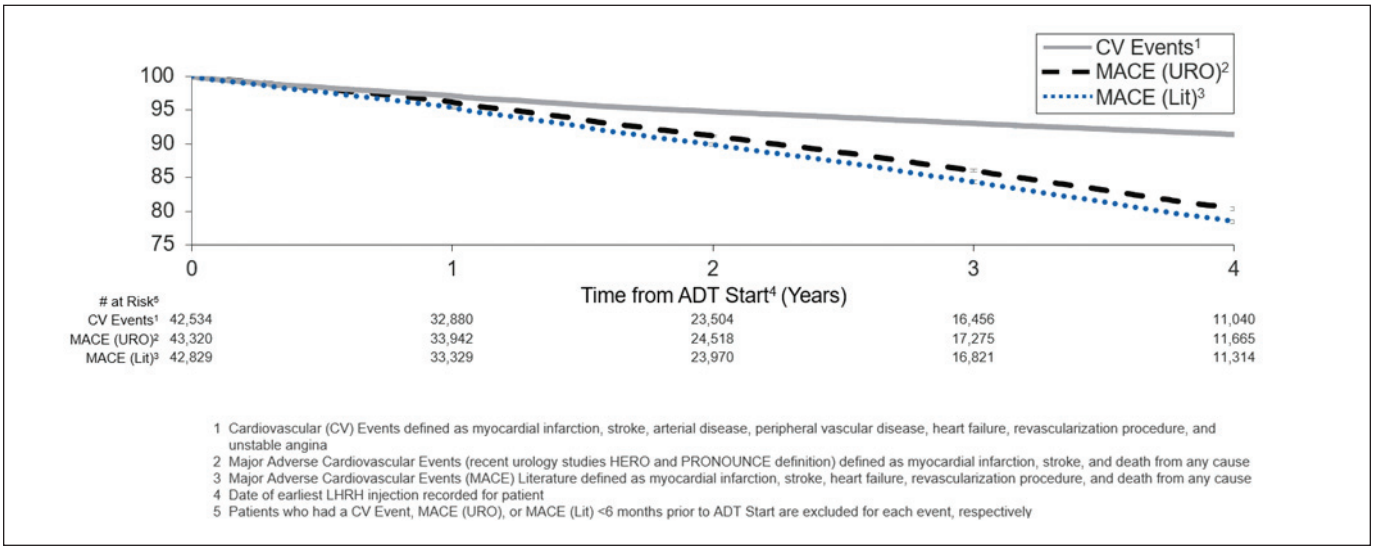
Maximiliano Ringa[1], Jethro C.C. Kwong[2,3], Amna Ali[1], Adree Khondker[4], Christopher Tran[4], Emily Evans[4], Andrew Feifer[1,2,5]
[1]Institute for Better Health, Trillium Health Partners, Mississauga, Canada; [2]Division of Urology, Department of Surgery, University of Toronto, Toronto, Canada; [3]Temerty Centre for AI Research and Education in Medicine, University of Toronto, Toronto, Canada; [4]Temerty Faculty of Medicine, University of Toronto, Toronto, Canada; [5]Carlo Fidani Regional Cancer Centre, Trillium Health Partners, Mississauga, Canada

Introduction: Many socioeconomic and demographic factors are linked to disparities in healthcare delivery. Despite the introduction of novel androgen receptor axis therapies for advanced prostate cancer, access to these treatments may not be equitable across all patient groups. This study aims to investigate castrate-resistant prostate cancer (CRPC) treatment patterns and outcomes at Trillium Health Partners (THP) — serving one of the most diverse communities worldwide, with >50% of its constituents identifying as immigrants.

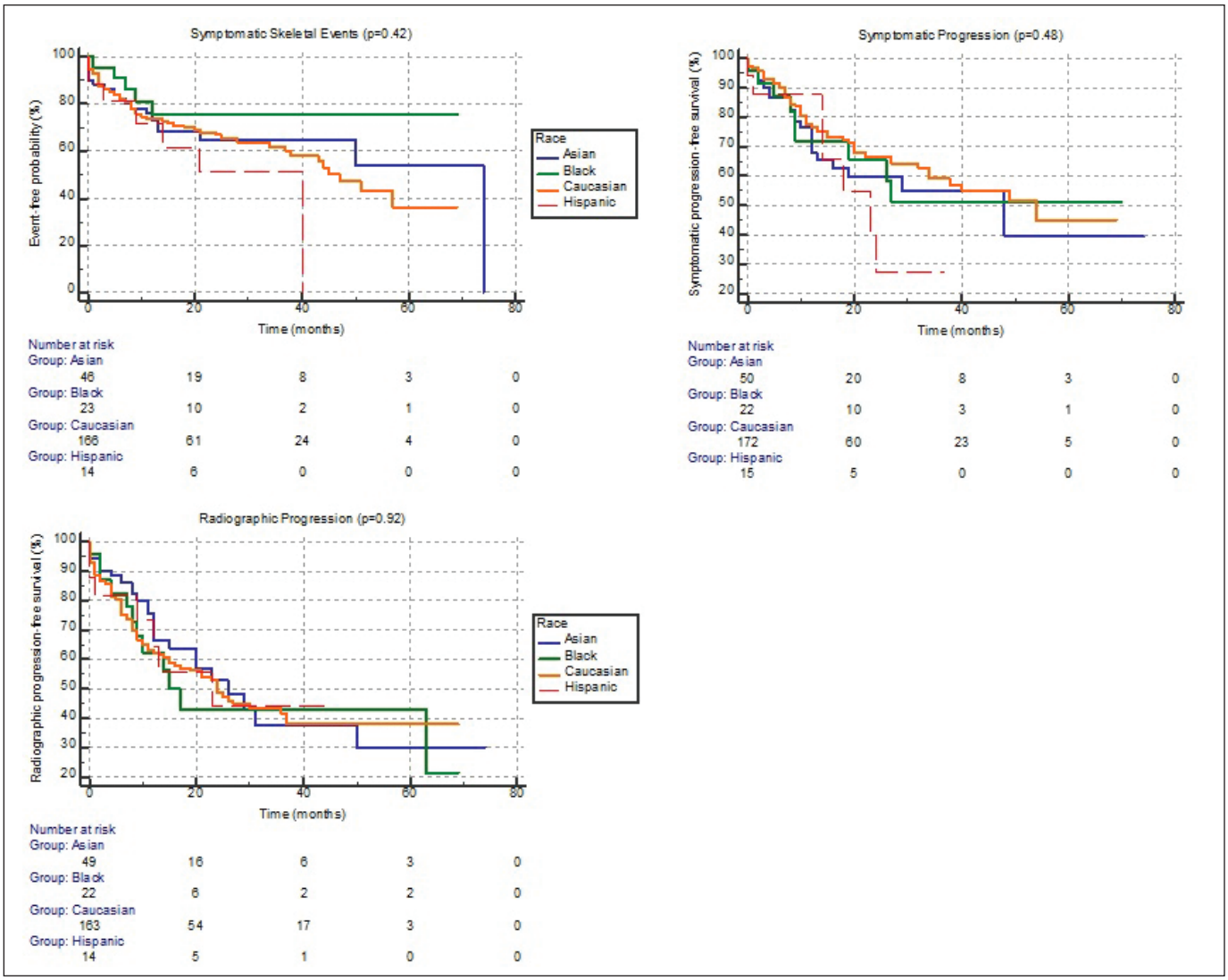
Methods: A retrospective chart review of 276 CRPC patients at THP (2012–2020) was conducted. Sociodemographic, clinical and disease features, treatments received, and outcomes were assessed. Outcomes included symptomatic skeletal events (SSE), symptomatic (SP), and radiographic progression (RP). Race was determined by self-reported questionnaires or by using a validated deep-learning model that predicts race based on first and last names. Differences in primary treatment and first-line CRPC therapy stratified by race were evaluated using Chi-squared tests. Times to SSE, SP, and RP were assessed by Kaplan-Meier curve analysis.

Results: Median followup was 16 months (IQR 8–30). Race was available for 50% of patients, of which our deep learning model was internally validated, showing 90% accuracy. Among all patients, 183 (66%) were Caucasian, 24 (9%) Black, 52 (19%) Asian, and 17 (6%) Hispanic. Race was not associated with treatment choice for the primary tumor, nor for first-line CRPC therapy (p=0.08 and 0.28, respectively). No differences in time from CRPC to SSE, SP, or RP were observed when stratified by race (Figure 1).

Conclusions: No disparities in treatment patterns or outcomes across this diverse immigrant population were observed when stratified by race. While this finding is not unexpected given the comprehensive approach by our program and universal healthcare, it underscores the importance of outcomes assessment for all diseases to ensure equitable access and quality of care.



MP 9.10. Figure 1. Kaplan-Meier curve (±SE) of CV events[1], MACE (uro)[2], MACE (lit)[3], since ADT start[4] by all patients.



MP 9.11. Figure 1. Time from diagnosis of CRPC to symptomatic skeletal events, symptomatic and radiographic progression, stratified by race.

MP 9.12

The second interim analysis of the DARolutamide ObservationaL study in patients with non-metastatic castration-resistant prostate cancer

Bobby Shayegan[1], Evan Y. Yu[2], Christopher M. Pieczonka[3], Hiroyoshi Suzuki[4], James Bailen[5], Geoffrey Gotto[6], Joelle P. Hamilton[7], Hiroji Uemura[8], Declan Murphy[9], Thierry Lebret[10], Murilo Luz[11], Patrick Adorjan[12], Javeed Khan[13], Alberto Briganti[14], Andrew J. Armstrong[15]
[1]St. Joseph's Healthcare, McMaster University, Hamilton, Canada; [2]Hutchinson Cancer Center and University of Washington, Seattle, United States; [3]Associated Medical Professionals of New York, Syracuse, United States; [4]Toho University Sakura Medical Cente, Chiba, Japan; [5]First Urology, PSC, Jeffersonville, United States; [6]University of Calgary, Southern Alberta Institute of Urology, Calgary, Canada; [7]Urology Centers of Alabama, Homewood, United States; [8]Yokohama City University Medical Center , Yokohama, Japan; [9]University of Melbourne and Peter MacCallum Cancer Centre, Melbourne , Australia; [10]Hôpital Foch, Université Versailles Saint Quentin, Paris, France; [11]Hospital Erasto Gaertner, Curitiba, Brazil; [12]Bayer Consumer Care Aktiengesellschaft, Basel, Switzerland; [13]Bayer Public Limited Company, Reading, United Kingdom; [14]Urological Research Institute, Istituto di Ricovero e Cura a Carattere Scientifico Ospedale San Raffaele and Università Vita-Salute San Raffaele, Milan, Italy; [15]Duke University School of Medicine, Durham, United States

Introduction: In ARAMIS (NCT0220614), darolutamide (DARO) significantly improved metastasis-free survival (MFS) by approximately two years and reduced the risk of death by 31% vs. placebo in patients (pts) with non-metastatic castration-resistant prostate cancer (nmCRPC), with a favorable tolerability profile. We report results from the pre-planned second interim analysis (IA) of the ongoing DAROL study (NCT04122976) on real-world safety and effectiveness of DARO in pts with nmCRPC.
Methods: DAROL is a global, open-label, single-arm, non-interventional study in pts aged ≥18 yrs with confirmed nmCRPC treated with DARO pre-enrollment. Primary endpoint is safety of DARO, including incidence and severity of treatment-emergent adverse events (TEAEs). Secondary endpoints include MFS, overall survival (OS), time to prostate-specific antigen (PSA) progression, and PSA response. After 300 pts completed ≥6 mo of treatment, pts were assessed for safety, and efficacy was evaluated in pts with ≥1 post-baseline (BL) assessment (cutoff October 11, 2022).
Results: Among 300 treated pts, the proportion from Canada/U.S./Europe/Asia Pacific/Latin America was 14%/31%/30%/25%/<1%, respectively. Median age was 80 yrs; 51% had a Gleason score >7; 92% had 0/1 ECOG status. Median BL PSA was 3.9 ng/mL (range 0–248.0) and median BL PSA doubling time was 5.3 mo (range 0–36.2). Median followup time was 14.8 mo (IQR 10.9–19.3) and median treatment

MP 9.12. Table 1. Treatment-emergent adverse events at the DARolutamide ObservationaL second interim analysis

TEAE, n (%)	TEAE†	DARO-related TEAE†
Any	111 (37)	73 (24)
Fatigue*	28 (9)	25 (8)
Diarrhea*	9 (3)	6 (2)
Asthenia*	8 (3)	4 (1)
Urinary tract infection*	7 (2)	NR
Dizziness*	7 (2)	5 (2)
Serious	24 (8)	3 (1)
Grade 3/4	25 (8)	13 (4)
Leading to DARO discontinuation	19 (6)	16 (5)

*TEAEs observed in ≥2% of pts. †N=300.

duration was 13.4 mo (IQR 9.3–17.8). TEAE incidences and DARO-related TEAEs were generally low (Table 1), consistent with results in ARAMIS. Among 263 pts, the median time to PSA progression was 17.6 mo (95% CI 13.2–19.0); MFS/OS data remain immature. PSA declines from BL of ≥30%, ≥50%, and ≥90% at any time were observed in 80%, 76%, and 54% of pts, respectively.

Conclusions: In the real-world setting of DAROL second IA, DARO continued to show a favorable safety profile, consistent with that of the ARAMIS clinical trial, with no new safety signals.

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UP 9.1

Prostate cancer metastasis induces distinct irregular bone formations and harbors heterogeneous prostate cancer phenotypes

Atsuhiko Yoshizawa[1], Felipe Eltit[1], Qiong Wang[2], Xin Zhou[3], Danmei Liu[4], Raphaele Charest-Morin[5], Colm Morrissey[6], Eva Corey[6], Rizhi Wang[2], Michael E. Cox[1]

[1]Urologic Sciences, University of British Columbia, Vancouver, Canada; [2]Materials Engineering, University of British Columbia, Vancouver, Canada; [3]Electrical Engineering, University of British Columbia, Vancouver, Canada; [4]Centre for Hip Health and Mobility, Vancouver, Canada; [5]Orthopedics, University of British Columbia, Vancouver, Canada; [6]Urology, University of Washington, Seattle, United States

Introduction: Prostate cancer bone metastases (PCBMs) are a primary cause of pain and fractures that impair patient quality of life. We hypothesize that sclerotic structural changes in PCBMs compromise bone mechanical properties.

Methods: We compared the structure of cadaveric PCBM and normal lumbar vertebrae using micro-computed tomography and quantitative scanning electron microscopy, collagen fiber anisotropy using polarization-sensitive optical coherence tomography, and elastic modulus and hardness using nanoindentation. We histologically characterized collagen composition and alignment, as well as extracellular matrix composition. We determined PCBM cell populations and PC cell type and distribution in surgically resected PCBM vertebrae using single-cell RNA sequencing and immunohistochemistry.

Results: We observed lesions with mixed osteolytic with sclerotic foci; osteoblastic lesions with sclerotic matrix deposited on, and between, trabecula; and amorphous sclerotic osteoblastic lesions. Mineral content, elastic modulus, and hardness were indistinguishable between sclerotic and organized bone, but mineral content was more heterogeneous in sclerotic regions. The sclerotic matrix was disordered, with higher lacunae density, and proteoglycan, collagen III, osteopontin, osteonectin, and osteocalcin content. The PCBM tumor microenvironment included hematopoietic and bone-resident cells, as well as AR-high, AR-low, double-negative PC cells, and a few neuroendocrine cells in the same lesion. PC cells were observed in: glandular clusters maintaining a polarized organization; as groups of unpolarized cells along the bone surface and in contact with osteoblasts and leukocytes; and as scattered AR+ and AR- cells in the intertrabecular space.

Conclusions: Sclerotic PCBM lesions exhibit disorganized, heterogeneous organic and mineral consistent with weakened healing bone. How the spectrum of PC cells interact with bone cells to affect bone turnover and structure needs further analysis.

UP 9.2

The Sunnybrook Odette Cancer Centre experience: Oncologist-initiated genetic testing for prostate cancer patients

Larissa Waldman[1,2], Yael Silberman[1], Xin Wang[3,4], Caleb Tackey[3], Danny Vesprini[5,6], Urban Emmenegger[3,4], Andrea Eisen[3,4], Martin Smoragiewicz[3,4]

[1]Cancer Genetics and High Risk Program, Sunnybrook Odette Cancer Centre, Toronto, Canada; [2]Department of Molecular Genetics, University of Toronto, Toronto, Canada; [3]Department of Medicine, University of Toronto, Toronto, Canada; [4]Department of Medical Oncology, Sunnybrook Odette Cancer Centre, Toronto, Canada; [5]Department of Radiation Oncology, University of Toronto, Toronto, Canada; [6]Department of Radiation Oncology, Sunnybrook Odette Cancer Centre, Toronto, Canada

Introduction: Approximately 20–30% of men with prostate cancer are reported to have a genetic mutation, of which approximately half are germline and half are somatic. The Odette Cancer Centre, a large tertiary oncologic center, introduced oncologist-initiated genetic testing, mainstreaming, for prostate cancer patients in April 2021, when eligibility criteria for germline genetic testing expanded.

Methods: We conducted a retrospective chart review on the first year's mainstreaming experience at the Odette Cancer Centre. Between May 1, 2021, and May 30, 2022, 174 eligible prostate cancer patients underwent mainstreaming testing with a 19-gene panel. Descriptive and inferential statistics were used to compare patients with and without a germline mutation.

Results: Patients were of various ethnic backgrounds, with a median age of 75 (IQR 68.25–80), and 72% were diagnosed with either de novo metastatic or high-risk local prostate adenocarcinoma. Fourteen patients (8%; 95% CI 4–12%) were found to have a deleterious germline mutation in the following genes: CHEK2 (n=4), ATM (n=3), BRCA2 (n=2), BRCA1 (n=1), PMS2 (n=1), RAD51C (n=1), HOXB13 (n=1), and BRIP1 (n=1). This includes a mosaic (VAF=30%) mutation in CHEK2. Patients with germline mutations were not statistically different from those without a mutation in terms of baseline clinicodemographic features, including age, stage at diagnosis, baseline PSA, and prior lines of treatment. Of the 14 patients with a germline mutation, none reported a second primary cancer and eight (57%) reported a first- or second-degree relative with a history of prostate, breast, ovarian, or pancreatic cancer. The median turnaround time for germline results was 91 days (IAR 37–113 days).

Conclusions: We demonstrate the feasibility of a mainstreaming model for germline genetic testing in prostate cancer patients. Personal history and family history of cancer cannot reliably stratify patients for the presence of deleterious germline variants.

Acknowledgements: An abstract based on the same data has been submitted to the BRCA Symposium 2023: Moving Into the Mainstream.

UP 9.3

A phase 2 clinical and translational study of pembrolizumab given prior to radical prostatectomy in non-metastatic Gleason ≥8 prostate cancer patients positive by 18-FDG-PET scanning

Marjorie Besançon[1], Alain Bergeron[1], Rabi Tiguert[2], Thierry Dujardin[1], Jean-Mathieu Beauregard[1], Vincent Fradet[1], Frédéric Pouliot[1], Yves Fradet[1]

[1]Research Centre of, CHU de Québec-Université Laval, Quebec, Canada; [2]Department of Urology, CHU de Québec-Université Laval, Quebec, Canada

Introduction: Most prostate cancers (PCa) do not respond to anti-PD-1 immunotherapy. Thus, a major challenge is the identification of patients that would most likely benefit from this treatment. High glucose metabolism, as detected by 18-FDG-PET/CT imaging, is a biological biomarker-based method to identify patients at higher risk of recurrence and early failure of androgen deprivation therapy. Our hypothesis is that patients with 18-FDG-PET-positive PCa may be more responsive to pembrolizumab treatment, particularly at an early stage, when not yet treated by androgen deprivation therapy.

Methods: Patients with Gleason ≥8 PCa without metastasis other than pelvic lymph node oligometastasis and with a prostate 18-FDG uptake of SUVmax ≥4 who opted for radical prostatectomy (RP) were eligible. Patients received three cycles of pembrolizumab before RP. A second 18-FDG-PET/CT exam was performed before the third cycle of pembrolizumab to observe a possible variation in 18-FDG uptake.
Results: As of January 2023, 21 patients were enrolled and 16 patients received all three cycles of pembrolizumab and underwent RP. Pathology revision of RP specimens showed nine patients with Gleason 9, two patients with Gleason 8, and four patients Gleason 7 PCa, revealing four cases of downgrading compared to Gleason grade observed on biopsy specimens. With regard to changes in glucose metabolism after two treatments, eight patients presented a decrease whereas five patients showed an increase in 18-FDG uptake, while three patients remained stable. Treatment with pembrolizumab in the pre-RP setting was safe, with the usual treatment-related adverse events.
Conclusions: Recruitment to up to 30 participants continues to further confirm these preliminary observations.
Acknowledgements: The authors would like to thank all participants to this study, research nurses, biobanking staff members, and administrators implicated directly or indirectly in this project. The study was supported by a Quantum Leap grant funded jointly by the Fondation du CHU de Québec, MERCK, and the Consortium Québécois pour le Dévelopement du Médicament (CQDM) with funds from the Ministère de l'Économie et de l'Innovation (MEI) du Gouvernement du Québec.

UP 9.4

The impact of travel distance on the choice of treatments in localized and advanced prostate cancer

Vahid Mehmoush[1], Waleed Shabana[1], Hazem Elmansy[1], Ahmed S. Zakaria[1], Maryam Einshouka[1], Neda Ghaffari-Marandi[1], Ahmed Kotb[1], Walid Shahrour[1]
[1]Urology, Northern Ontario School of Medicine University, Thunder Bay, Canada
Introduction: It is critical for the optimal management of prostate cancers that a patient has adequate planned and emergent access to appropriate facilities and specialists, such as experienced surgeons and oncologists. These aspects of care are difficult to provide for patients who live far from major population centers. The burden of travel is a significant factor influencing patient access to and utilization of healthcare. The objective was to examine: 1) the association of travel distance on the treatment choices of localized and advanced prostate cancer, and 2) the differences in treatment trends by risk group
Methods: The hospital-based cancer registry of patients diagnosed with prostate cancer (PCa) from 2010–2020 who received treatment at Thunder Bay Northern Ontario Medical Centre was retrospectively reviewed. The primary predictor, which was the travel distance to the medical center, was defined as the distance between the geographic centroid of the patient's zip codes and the hospital and was classified as 1) <300 km, and 2) ≥300 km. Risk stratification was also applied to the cohort according to American Urological Association.
Results: The cohort of 1412 patients aged 69 years (median) diagnosed with PCa was analyzed. Of them, 1211 (85.8%) were diagnosed with localized PCa, while 201 (14.2%) were advanced. There were no significant differences between the groups in terms of basic characteristics. The choice of treatment was statistically different only among patients with localized PCa than patients living <300 km from the treatment facility: 36.3% received radical prostatectomy compared to 26.3% of those living farther away (Table 1). Compared to those living ≥300km, intermediate- and high-risk localized PCa patients living <300 km were more likely to opt for radio-, and hormone therapy (Tables 2, 3, 4).
Conclusions: Increased distance to the treatment facility was associated with a decreased likelihood of proper therapy for surgically treatable localized tumors and an increased likelihood of hormone and radiotherapy. That might be attributed to the burden of access to postoperative care in case of complications for those who live in remote areas. Access to prostate cancer care services can influence the decisions at all time points in the course of treatment.

UP 9.4. Table 1. Choice of treatment overall and between distances groups

Treatment	Total	Less than 300 km	300 km and above	p
Localized				
Radical prostatectomy	390 (34.6)	340 (36.3)	50 (26.3)	0.003
Radiotherapy	431 (38.4)	344 (36.8)	87 (45.8)	0.005
Primary ADT	104 (9.2)	78 (8.4)	26 (13.7)	0.004
Active surveillance	200 (17.8)	173 (18.5)	27 (14.2)	0.061
Advanced				
Radical prostatectomy	9 (4.5)	9 (6.3)	0 (0)	0.098
Radiotherapy	22 (10.9)	17 (11.8)	5 (8.8)	0.123
Primary ADT	168 (83.6)	117 (81.3)	51 (89.5)	0.079
Active surveillance	2 (1.0)	1 (0.7)	1 (1.8)	0.701

The above data were found for 1326 (out of 1412).

UP 9.4. Table 2. Choice of treatment in low-risk localized prostate cancer

Treatment	Total (%)	Less than 300 km	300 km and above	p
Radical prostatectomy	58 (25)	48 (24)	10 (27)	0.8
Radiotherapy	33 (15)	26 (14)	7 (19)	
Active surveillance	134 (59)	114 (60)	20 (54)	
Primary ADT	3 (1)	3 (2)	0 (0.0)	

UP 9.4. Table 3. Choice of treatment in intermediate-risk localized prostate cancer

Treatment	Total (%)	Less than 300 km	300 km and above	p
Radical prostatectomy	252 (44)	221 (46)	31 (36)	0.01
Radiotherapy	227 (40)	188 (39)	39 (45)	
Active surveillance	58 (10)	52 (11)	6 (7)	
Primary ADT	31 (5)	21 (4)	10 (12)	

UP 9.4. Table 4. Choice of treatment in high-risk localized prostate cancer

Treatment	Total (%)	Less than 300 km	300 km and above	p
Radical prostatectomy	81 (25)	72 (27)	9 (12)	0.02
Radiotherapy	171 (52)	131 (50)	40 (54)	
Active surveillance	8 (2)	7 (3)	1 (1)	
Primary ADT	70 (21)	54 (20)	24 (32)	

UP 9.5

Effect of mTOR activity in peripheral blood mononuclear cells with metformin in high-risk prostate cancer patients receiving external beam radiotherapy and androgen deprivation therapy

Febin Antony[1], Andrew Plesniarski[2], Anuraag Shrivastav[3], Arbind Dubey[1], Nawaid Usmani[4], Ruey-Chyi Su [2], Aldrich Ong[1], Rashmi Koul [1], Harvey Quon[5], Gokulan Sivananthan[1], William Hunter[1], Don Yee[4], Lindsay Rowe[4], Brita Danielson[4], Julian O Kim[1]

[1]Radiation Oncology, Cancer Care Manitoba, Winnipeg, Canada; [2]Medical Microbiology & Infectious Diseases, JC Wilt Infectious Diseases Research Centre, Winnipeg, Canada; [3]Biology, Cancer Care Manitoba Research Institute, Winnipeg, Canada; [4]Radiation Oncology, Cross Cancer Institute, Edmonton, Canada; [5]Radiation Oncology, Tom Baker Cancer Centre, Calgary, Canada

Introduction: There is considerable interest in the antineoplastic properties of metformin for prostate cancer (PCa) treatment. It is suspected that metformin's antineoplastic activity is related to the inhibition of mTOR (mammalian target of rapamycin), which ultimately inhibits cell proliferation. In this pilot study, we assessed the mTOR activity of peripheral blood mononuclear cells (PBMCs) from high-risk PCa patients treated with androgen deprivation therapy (ADT) and external beam radiotherapy (EBRT) plus metformin vs. placebo. We hypothesized decreased mTOR activation in CD4+ T cells from patients receiving metformin vs. placebo.

Methods: Normoglycemic adult males with high-risk PCa receiving ADT and EBRT were randomized to metformin 500 mg three times daily or placebo. Peripheral blood samples were collected from participants ≥6 months after starting study drug, and PBMCs were isolated <2 hours after specimen collection using ficoll-hypaque density gradient method. The mTOR expression and activation were assessed by staining with antibodies specific for mTOR or mTOR with phosphorylation at serine 2448 (pmTOR; S2448). Activation of pmTOR was measured in both unstimulated or stimulated (using CD3/CD28 antibodies) CD4+ T cells.

Results: Samples from 15 patients were analyzed (11 placebo and four metformin). We observed lower activation of pmTOR in the unstimulated or stimulated CD4+T cells of those patients receiving metformin compared to placebo, indicating metformin may be inhibitory of mTOR activity in T cells; however, the most pronounced difference was observed in unstimulated CD4+T cells, which is of interest since they represent the closest physiological state to the study participants.

Conclusions: In this pilot study, we observed reduced mTOR activation in PBMCs of PCa patients treated with metformin. Further assessment of mTOR activity among PCa patients receiving metformin is warranted in order to confirm these findings.

UP 9.6

Multiparametric MRI can be used to identify disease progression and adverse pathology after radical prostatectomy in men previously managed with active surveillance

Jonathan Suderman[1], Ali Hussein[2], Caris Tin[2], Alan I. So[1], Martin E. Gleave[1], Larry Goldenberg[1], Miles P. Mannas[1], Peter C. Black[1]

[1]Department of Urologic Sciences, University of British Columbia, Vancouver, Canada; [2]Vancouver Prostate Centre, Vancouver, Canada

Introduction: Multiparametric MRI (mpMRI) increases detection of clinically significant prostate cancer (PCa). AUA guidelines recommend use of mpMRI in patients on active surveillance (AS) to enhance risk stratification, yet surveillance criteria have not yet been updated to include mpMRI imaging characteristics. Our objective was to investigate how mpMRI findings predict disease progression and the presence of adverse pathologic features at subsequent radical prostatectomy.

Methods: Clinical and imaging data were retrospectively collected from men diagnosed with PCa from 2004–2016 who were monitored by AS at a single center. Patients were considered on AS if ≥1 confirmatory targeted biopsy was performed after an initial diagnosis of PCa. Serial mpMRI studies were performed and read at an expert center by genitourinary radiologists. Patients were classified based on clinical and imaging findings using PIRADSv2 scoring. Primary endpoints included progression to definitive treatment and presence of adverse pathologic features (pT≥3a and/or pN1 and/or ISUP 4/5) at radical prostatectomy.

Results: Analysis was performed on 103 patients for whom 312 surveillance mpMRIs were completed. In 93 patients PCa was diagnosed prior to undergoing first mpMRI. Median time on AS was 7.0 years (IQR 5.1 years) with median followup of 9.2 years (IQR 4.3 years). Thirty-three men (31.7%) progressed to definitive treatment, 19 (18.4%) of whom had a PIRADS ≥3 lesion (five PIRADS 3, 14 PIRADS 4/5). Patients with PIRADS ≥3 lesions showed an increased trend towards progression to definitive treatment (HR 1.36, CI 0.5–2.22, p=0.05), though not statistically significant. Adverse pathology was identified in nine men (8.7%), seven of whom had a PIRADS ≥3 lesion on surveillance mpMRI (two PIRADS 3, five PIRADS 4/5). A total of 58 mpMRIs showed lesions with a higher PIRADS score compared to the previous study. Of these, 14 (24.1%) progressed to definitive treatment: 11 (78.6%) showed PIRADS 4/5, and three (21.4%) showed PIRADS 3 lesions. Nine of 14 (64.3%) who progressed had an increase in PIRADS score by ≥3 points from the previous study. Cancer-specific and metastasis-free survival were 99%.

Conclusions: Multiparametric MRI may be useful in predicting progression to definitive management and adverse pathology at the time of radical prostatectomy. The characteristics of lesions visualized on mpMRI should be considered when determining ongoing AS vs. active intervention in men on AS.

UP 9.7

International Prostate Symptom Score as a predictor of overall survival in patients with localized prostate cancer

Daniel Taussky[1], Mikhael Laskine[2], Guila Delouya[1], Daniel Liberman[3]

[1]Department of Radiation Oncology, Centre Hospitalier de l'Université de Montréal (CHUM), Montreal, Canada; [2]Department of Internal Medicine, Centre Hospitalier de l'Université de Montréal (CHUM), Montreal, Canada; [3]Division of Urology, Department of Surgery, Centre Hospitalier de l'Université de Montréal (CHUM), Montreal, Canada

Introduction: Men with prostate cancer often die from causes other than their cancer. Urinary symptoms in men and women are predictive of overall survival (OS). We analyzed whether urinary symptoms measured by the International Prostate Symptom Score (IPSS) questionnaire are predictive of OS in patients with prostate cancer treated with radiotherapy.

Methods: We selected all patients from our institutional database who underwent radiation therapy or brachytherapy as a primary treatment between January 2001 and August 2022. We compared OS in patients with baseline mild symptoms (IPSS 0–7) with patients with moderate to severe symptoms (score >7). Chi-squared test was used for differences in proportions, Pearson correlation coefficient for linear correlations. Kaplan-Meier plots and Cox regression models were used for differences in OS.

Results: Of 2733 available patients, 2542 (93%) had data on IPSS. Median age was 66 years. Median followup was 52 months (IQR 30–84). A total of 1925 (76%) patients had none or mild symptoms, 600 (24%) had moderate, and 17 (0.7%) had severe symptoms. Moderate to severe symptoms were more frequent in patients >66 years compared to younger patients (56% vs. 44%, p<0.001), as well as in diabetics (29% vs. 24%, p=0.03). There was no difference in severity of symptoms in patients treated for hypercholesterolemia (p=0.26) or hypertension (p=0.82). Patients with more aggressive cancers, as described by the CAPRA score, presented higher frequency (p<0.001) of moderate to severe symptoms: high-risk (score 6–10) 34% vs. intermediate (score 3–5) 24% vs. low (score 0–2) 22%. The IPSS as a continuous variable didn't correlate with age (p=0.15) or prostate volume (n=2245, p=0.08). On univariate analyses, patients with no or mild symptoms had a significantly (p=0.021, log-rank test) longer OS (mean 190 months, 95% CI 186–194) than patients with moderate to severe symptoms (mean 178 months, 95% CI 173–183). On multivariate Cox regression analysis, moderate to severe symptoms (HR 1.26, 95% CI 1.01–1.57, p=0.042), as well as a higher CAPRA score (HR 1.29, 95% CI 1.17–1.41, p<0.001) were associated with lower OS. In that model, coronary heart disease (p=0.069), diabetes (p=0.077), statin use (p=0.96), and hypertension (p=0.27) didn't reach statistical significance.

Conclusions: Patients with localized prostate cancer undergoing brachytherapy or radiotherapy presenting baseline moderate to severe urinary symptoms have a lower OS, which is independent of other factors such as cancer aggressiveness or comorbidities.