

Medical Advisors

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Thanks!

Next Meeting

Date: Wednesday, April 17, 2024

Speaker: Jessica Heise MA, MTA Music therapist and psychotherapist
Owner and Founder of Transformative Music Therapy

Topic: "The Transformative Power of Music in Mental Health and in dealing with life as a Cancer Survivor"

Location: The First Unitarian Universalist Church of Winnipeg, 603 Wellington Crescent, Winnipeg

Time: 7-9 pm



Free Admission Everyone Welcome Plenty of free parking Door Prizes

Thought of The Day

Perseverance is not a long race; it is many short races one after the other.

Walter Elliot

Advantages and limitations of AI in prostate cancer

In a presentation delivered at the 17th Annual Interdisciplinary Prostate Cancer Congress and Other Genitourinary Malignancies, an event hosted by Physician's Education Resource (PER), in New York, New York, Peter A. Humphrey, MD, PhD, discussed the potential advantages and limitations of AI in prostate cancer.

Humphrey is a professor of pathology at Yale School of Medicine and director of genitourinary pathology at Yale Medicine in New Haven, Connecticut.

Interest in artificial intelligence (AI) in prostate cancer pathology has picked up speed since initial attempts of computer-aided diagnosis of the disease

more than a decade ago, according to Peter A. Humphrey, MD, PhD. However, before the technology can be introduced into routine clinical practice, investigators must first prove that the progress AI may afford outweighs current challenges.³

One of several investigations

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The Manitoba Prostate Cancer Support Group offers support to prostate cancer patients but does not recommend any particular treatment modalities, medications or physicians ; such decisions should be made in consultation with your doctor.

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that sought to define the capability of AI in prostate cancer diagnosis and grading was the PANDA challenge. Historically, Gleason grading, which is performed by light microscopic interpretation of patterns of prostate cancer growth, has been the most powerful indicator of prognosis. However, it's inherently subjective, leaving room for error, Humphrey explained.⁴

To determine whether AI could outperform standard identification methods investigators compiled 12,625 whole slide images of prostate biopsies from 6 sites: 10,616 were used for model development, 393 were used for performance evaluation during the competition phase, and 545 and 1071 were used for internal and external validation, respectively.

During the competition phase, 1290 developers from 65 countries submitted algorithms, 15 of which were selected based on the algorithm's performance. The results showed that the average agreement of the selected algorithms with urologists high at kappa was 0.862 (quadratically weighted κ , 95% CI, 0.840-0.884) in the US and 0.868 (95% CI, 0.835-0.900) in the European Union. Additionally, the sensitivity for cancer detection ranged from 97.7% to 98.6%, with specificities falling between 75.2% and 84.3%. However, a high rate of false positives did occur, Humphrey explained, stating that the main algorithm error that was made was misdiagnosing benign cases as prostatic adenocarcinoma, leading to overdiagnosis.⁴

Study authors concluded that the AI prostate cancer grading algorithms were comparable to intercontinental and multinational cohorts with pathologist-level performance, warranting further study in prospective clinical trials.



However, in an article published in Current Opinion in Urology, authors identified 3 categories of overarching challenges that will continue to plague the development of AI if not properly addressed: conceptual, technical, and ethical. Conceptual concerns centered around defining the functions AI can perform in routine clinical practice and the level of autonomy diagnosis AI tools should have. Technical concerns had to do with whether laboratories can adopt sufficient infrastructure to support AI's use and whether pathologists can learn to use the technology responsibly. The last and perhaps most significant issue was ethical where study authors questioned when AI-based pathology will prove cost-effective and whether it can reduce diagnostic inequality.⁵

Beyond diagnosis and grading, AI has started to prove capable of providing personalized therapy through multi-modal deep learning in randomized phase 3 trials whereby models were trained and validated using 5 phase 2 randomized RTOG trials. As part of the analysis, a total of 16,204 digitized needle biopsy slides were used, with clinical data from 5654 patients. At a median follow-up of 11.4 years, investigators showed a prognostic improvement ranging from 9.2% to 14.6% compared with National Comprehensive Cancer Network risk groups and predictive benefit with androgen deprivation therapy in model-positive patients, reducing the risk of distant metastasis vs radiotherapy alone in the NRG/RTOG 9408 validation cohort.^{6,7}

Although the field has a long way to go in establishing proper parameters around AI's use, with guidelines not yet available in pathology, Humphrey highlighted the recent statement from radiology societies in the US, Canada, Europe, Australia, and New Zealand published in the Journal of Medical Imaging Radiation Oncology on developing, purchasing, implementing, and monitoring AI tools in radiology. The statement, in addition to addressing the issues surrounding the use of AI in radiology, are meant to provide practical considerations for AI's use in radiology in recognition that the technology will affect health care one way or another.⁸

(Continued on page 3)

Learning the basics about prostate cancer

As part of our outreach activity we provide speakers available to any community service group interested in learning about and upgrading their knowledge about prostate cancer. If you are part of a group that would like to learn, or review, the important basics

that everyone should know about this disease, presented at an easy-to-understand layperson level, please contact any board member to schedule a presentation. It takes about an hour and allows for active engagement between speaker(s)

and audience to explore a variety of interests and concerns. There is no cost for this service. Size of the group doesn't matter, but the more the merrier. You provide the audience and we'll provide the speaker.

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In conclusion, Humphrey summarized his hope for the field, citing authors of the PANDA challenge: “We foresee a future where pathologists can be assisted by algorithms such as these in the form of a digital colleague.”⁴

References

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March 14, 2024 Caroline Seymour

Source: www.urologytimes.com/view/advantages-and-limitations-of-ai-in-prostate-cancer

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In Memoriam



Nicholas “Pat” Patrick Feschuk

March 17, 1939 – March 7, 2024

Pat and his wife Liz were stalwarts on our board of directors for many years. They were dedicated supporters of all our activities. Their fellowship and wisdom shall be missed.

Rest in Peace

Could Two Drugs Be Better Than One for Treating Prostate Cancer?

UCSF-led clinical trial shows improved benefit of combination drug therapy without worse side effects.

Combining testosterone-blocking drugs in patients with prostate cancer relapse prevents the spread of cancer better than treatment with a single drug, a multi-institution, phase 3 clinical trial led by UC San Francisco researchers has found.

The approach can extend the time between debilitating drug treatments without prolonging the time it takes to recover from each treatment.

Prostate cancer affects 1 in 8 men and causes 34,000 deaths each year in the United States. It is usually treated with one of several testosterone-lowering drugs for a set period of time.

“This adds to a growing body of evidence in favor of more intensive testosterone-blocking therapy in patients with higher-risk prostate cancer,” said Rahul Aggarwal, MD, professor in the UCSF School of Medicine and lead author of the paper.

The researchers’ findings were published on Jan. 23, 2024, in the *Journal of Clinical Oncology*. They were first announced in September 2022 at the annual meeting of the European Society for Medical Oncology.

A case for intensifying prostate cancer treatment

The new study focused on patients who had surgery for prostate cancer, and yet the cancer relapsed and was detected through a sudden jump in the blood levels of a protein called prostate-specific antigen (PSA).

“We looked at patients who had a fast rise in their PSA — an indicator of a higher-risk form of relapsed prostate cancer,” Aggarwal said. “Our goal was to test several different hormone therapy strategies to find the best approach in terms of delaying the cancer’s progression.”

... Combination hormone therapy should be considered a standard of care in prostate cancer patients with high-risk relapse after prior treatment.”

RAHUL AGGARWAL, MD

Between 2017 and 2022, 503 patients were randomly assigned to take a single testosterone-lowering therapy chosen by their oncologist, or to combine it with one or two other testosterone-lowering drugs. The additional drugs were already FDA-approved for other cancers but hadn’t been tested in this way with prostate cancer.

The patients stayed on the assigned therapy for a year. Whether given singly or in combination, the drugs

caused their testosterone to plummet. That put the brakes on their cancer but also caused fatigue, hot flashes, decreased libido and other problems for patients, according to Aggarwal.

Compared to the prostate cancer patients who only received a single drug therapy during their year of treatment, patients who received either one or two additional drugs stayed cancer-free, with low PSA levels, for longer.

Once off the treatment, patients who took the combination therapies saw their testosterone levels recover just as fast as others who took the single drug.

The researchers are following up with a more detailed analysis of how patients fared on the different treatments — which side effects they experienced and for how long, and how they felt overall as they recovered.

“New cancer therapies must clear a high bar to make their way to patients,” Aggarwal said. “With the evidence in this study and others, combination hormone therapy should be considered a standard of care in prostate cancer patients with high-risk relapse after prior treatment.”

By Levi Gadye January 23, 2024

Source: www.ucsf.edu/news/2024/01/426971/could-two-drugs-be-better-one-treating-prostate-cancer

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Plant-Based Diet May Boost Sexual Function For Men With Prostate Cancer

A diet that limits meat and dairy but is rich in fruits, vegetables, grains, and nuts is linked to less erectile dysfunction, urinary incontinence, and other common side effects seen in prostate cancer patients.

The analysis of more than 3,500 men with prostate cancer explored whether eating a more plant-based diet was

associated with quality-of-life issues that often arise after treatment.

Sorting patients into five groups (quintiles) based on the proportion of plant versus animal foods the men says they eat, the authors found that the quintile that consumed the most plants scored 8% to 11% better in measures of sexual function compared with the

group that consumed the least.

Similarly, the results revealed up to 14% better scores for urinary health, with fewer instances of incontinence, obstruction, and irritation. The authors further found up to 13% better scores in hormonal health (which assesses symptoms like low energy, depression,

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and hot flashes) among the highest quintile of plant-based diet compared with the lowest.

“Our findings offer hope for those looking for ways to improve their quality of life after undergoing surgery, radiation, and other common therapies for prostate cancer, which can cause significant side effects,” says lead author and urologist Stacy Loeb, a professor in the urology and population health department at NYU Langone Health. “Adding more fruits and vegetables to their diet, while reducing meat and dairy, is a simple step that patients can take.”



Prostate cancer is among the most common and deadliest forms of cancer among American men, according to the US Centers for Disease Control and Prevention. Previous research by the same team had already found that eating a plant-based diet may reduce the risk of developing the disease in the first place.

Other investigations have connected this diet to a lower risk of sexual dysfunction in general but not specifically for those with prostate cancer, who are at particularly high risk for such issues.

The new study, published in the journal *Cancer*, is also believed to be the first of its kind to show better urinary health in these patients based on nutrition, Loeb says.

For the research, the team analyzed data from the Health Professionals Follow-Up Study, an ongoing investigation begun in 1986 and sponsored by Harvard Chan School.

The data set is composed of information on more than 50,000 male dentists, pharmacists, optometrists, osteopaths, podiatrists, and veterinarians. The project was designed to better understand how nutrition influences risks related to cancer, heart disease, and other serious illnesses.

“These results add to the long list of health and environmental benefits of eating more plants and fewer animal products,” says Stacy Loeb. “They also clearly challenge the historical misconception that eating meat boosts sexual function in men, when in fact the opposite seems to be the case.”

As part of the project, men with prostate cancer answered a questionnaire every four years about the kinds of foods they ate and in what proportions. Another survey, which was administered every two years, assessed frequency of incontinence, difficulties maintaining an erection, and problems with bowels, energy, and mood, among many other health concerns.

Most of the patients (more than 83%) had received prostate cancer treatment, Loeb notes, and all included in the current study had early forms of the disease that had not yet spread to other organs. She adds that when searching for potential connections between plant-based diet and health, the research team took into account weight, physical activity, and many other factors that could affect quality of life.

Among the findings, the researchers say, eating high amounts of any plant-based food was linked to better sexual health, urinary health, and vitality scores, regardless of demographic factors, lifestyle differences, or history of other medical issues such as diabetes. Eating more healthy plant-based food was also associated with better bowel function, which, Loeb says, may be explained by the dietary fiber found in plants.

“These results add to the long list of health and environmental benefits of eating more plants and fewer animal products,” says Loeb. “They also clearly challenge the historical misconception that eating meat boosts sexual function in men, when in fact the opposite seems to be the case.”

Loeb cautions that the men assessed in the study were mostly white health care professionals. As a result, she says the team next plans to expand their research to a more diverse group of patients and to those with more advanced stages of the disease.

Additional coauthors are from Harvard; the University of California, San Francisco; and the Dana-Farber Cancer Institute in Boston.

The National Institutes of Health, the New York State Department of Health, Tricia and Michael Berns, and the Prostate Cancer Foundation funded the work.

February 13th, 2024
Posted By Shira Polan-Nyu

Source: NYU

Original Study
<https://doi.org/10.1002/cncr.35172>
DOI: 10.1002/cncr.35172

Source: www.futurity.org/prostate-cancer-plant-based-diet-3179202/

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Microscopy plus deep learning to advance prostate cancer diagnosis

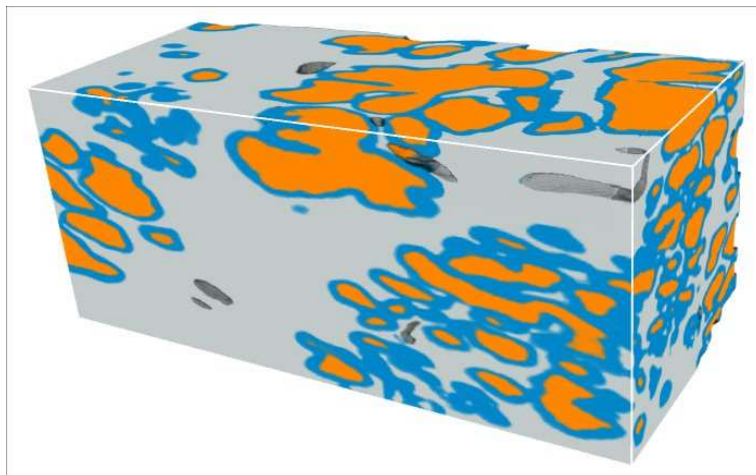
Researchers developed a machine-learning model to improve prostate cancer biopsy assessment: a significant leap in computational pathology and medical diagnostics

Prostate cancer stands as a prevalent threat to men's health, ranking second in cancer-related deaths in the United States. Each year, approximately 250,000 men in the U.S. receive a prostate cancer diagnosis. While most cases have low morbidity and mortality rates, a subset of cases demands aggressive treatment. Urologists assess the need for such treatment primarily through the Gleason score, which evaluates prostate gland appearance on histology slides. However, there's considerable variability in interpretation, leading to both undertreatment and overtreatment.

The current method, based on histology slides, has limitations. Only a small fraction of the biopsy is viewed in 2D, risking missed crucial details, and interpretations of complex 3D glandular structures can be ambiguous when viewed on 2D tissue sections. Moreover, conventional histology destroys tissue, limiting downstream analyses. To address these shortcomings, researchers have developed nondestructive 3D pathology methods, offering complete imaging of biopsy specimens while preserving tissue integrity.

Recent advancements include techniques for obtaining 3D pathology datasets, enabling improved risk

assessment for prostate cancer. Research published in *Journal of Biomedical Optics (JBO)* harnesses the full power of 3D pathology by developing a deep-learning model to improve the 3D segmentation of glandular tissue structures that are critical for prostate cancer risk assessment.



Microscopic glands of the prostate are segmented (colored) with the new deep-learning pipeline; the image shows a prostate cancer tissue volume, measuring roughly 1 x 1 x 2 mm in size. The prostate glands form a branching-tree network; orange regions represent the lumen (interior) of the glands, blue regions represent the epithelium (edges) of the glands, and gray regions are the surrounding stroma. The morphology of prostate glands, as viewed on 2D histology slides, is currently the basis for determining how aggressive a cancer is (prognostication), and what treatments are required for individual patients. Accurately segmenting and characterizing these glands in 3D within the context of large 3D pathology datasets has the potential to improve these prognostic determinations and critical treatment decisions.

Credit: Rui Wang, University of Washington.

The research team, led by Professor Jonathan T. C. Liu from the University of Washington in Seattle, trained a deep-learning model, nnU-Net, directly on 3D prostate gland segmentation data obtained from previous complex pipelines. Their model efficiently generates accurate 3D semantic segmentation of the glands within their 3D datasets of prostate biopsies, which were acquired with open-top light-sheet (OTLS) microscopes developed within their group. The 3D gland segmentations provide valuable

insights into the tissue composition, which is crucial for prognostic analyses.

Liu remarks, "Our results indicate nnU-Net's remarkable accuracy for 3D segmentation of prostate glands even with limited training data, offering a simpler and faster alternative to our previous 3D gland-segmentation methods. Notably, it maintains good performance with lower-resolution inputs, potentially reducing resource requirements."

The new deep-learning-based 3D segmentation model represents a significant step forward in computational pathology for prostate cancer. By facilitating accurate characterization of glandular structures, it holds promise for guiding critical treatment decisions to ultimately improve patient outcomes. This advancement underscores the potential of computational approaches in enhancing medical diagnostics.

Moving forward, it holds promise for personalized medicine, paving the way for more effective and targeted interventions.

Transcending the limitations of conventional histology, computational 3D pathology offers the ability to unlock valuable insights into disease progression and to tailor interventions to individual patient needs. As researchers continue to push the boundaries of medical innovation, the quest to conquer prostate cancer enters a new era of precision and possibility.

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For details on the recent advance, see the Gold Open Access article by Rui Wang et al., "Direct three-dimensional segmentation of prostate glands with

nnU-Net," *J. Biomed. Opt.* 29(3) 036001 (2024), doi 10.1117/1.JBO.29.3.036001

11 March 2024

Source: <https://spie.org/news/microscopy-plus-deep-learning-to-advance-prostate-cancer-diagnosis>

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Relugolix and radiation therapy may be a safe, effective combination for treating P C

A high impact study led by Daniel Spratt, M.D., Vincent K. Smith Chair in Radiation Oncology at University Hospitals Seidman Cancer Center demonstrates the safety and efficacy of a novel oral hormone therapy, relugolix, in conjunction with radiation therapy for treating men with localized and advanced prostate cancer. This work is published in *JAMA Oncology*.

This research, encompassing an individual patient level analysis from two multinational randomized clinical trials, showcases relugolix's ability to rapidly achieve and maintain low testosterone levels, a necessary condition for some men's prostate cancer treatment, in both short-term (24 weeks) and longer-term (48 weeks) therapy periods. A total of 260 men participated in these studies and received the hormone therapy with radiotherapy, showing significant castration rates with relugolix of 95% and 97% for short-term and longer-term therapy, respectively.

Remarkably, Relugolix demonstrated a faster return to baseline testosterone levels compared to traditional therapies, a crucial aspect for patients' quality of life post-treatment. This rapid recovery could significantly reduce the adverse impacts associated with long-term testosterone suppression, such as cardiovascular risks and bone density reduction."

Dr. Daniel Spratt, M.D., Vincent K. Smith Chair in Radiation Oncology at University Hospitals Seidman Cancer Center

For the first time, Dr. Spratt and colleagues demonstrated that there was no difference between leuprolide, an LHRH agonist, and relugolix in time to castration resistant-prostate cancer, a near uniformly lethal form of the disease.



Furthermore, the safety profile of relugolix was commendably consistent, with only a minor percentage of participants experiencing severe adverse effects. This positions relugolix as a potentially safer alternative to existing therapies, particularly for patients with pre-existing cardiovascular conditions.

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The study's findings further support the safety and efficacy of relugolix when combined with radiation therapy, and given the often finite durations of hormone therapy used with radiation therapy, relugolix is a very attractive treatment option for these men. Dr. Spratt's research not only underscores the importance of advancing combinatorial therapeutic approaches to managing prostate cancer, but also highlights the potential of oral therapies in oncology.

Dr. Spratt is also the national PI of the open OPTYX prospective study that is evaluating the real-world practice patterns and outcomes of Relugolix in men with prostate cancer, and has accrued over 600 of the anticipated 1000 men.

Source:
University Hospitals
Cleveland Medical Center

Journal reference:
Spratt, D. E., et al. (2024).
Efficacy and Safety of

Radiotherapy Plus Relugolix in Men With Localized or Advanced Prostate Cancer. *JAMA Oncology*. doi.org/10.1001/jamaoncol.2023.7279.

Editorial Checklist Reviewed
Mar 13 2024
University Hospitals Cleveland Medical Center

Source: www.news-medical.net/news/20240313/Relugolix-and-radiation-therapy-may-be-a-safe-effective-combination-for-treating-prostate-cancer.aspx

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FUTURE MEETINGS 2024

15 May Dr. Sean Ceaser, ND Naturopathic Doctor
Centre for Natural Pain Solutions
Topic: "Naturopathic Medicine offers additional options towards better management of your prostate cancer"

19 Jun Dr. Aldrich Ong MD, M Sc, FRCPC
Radiation Oncologist, CancerCare Manitoba
Topic: "Radiation therapy for prostate cancer: 2024 version"

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