Getting the most out of Radiation: Radiosensitizers

MateoBeach•

22 hours ago•19 Replies

This is my season for more radiation treatments. This coming week I will have 5 SBRT treatments in 5 days to two newly identified small lymph nodes found on my latest PSMA scan. One in the right pelvis (external iliac) and the other in the abdomen near the celiac plexus. The latter now makes my "officially" metastatic. I am still hormone sensitive and am also on high-dose cyclic testosterone for the past year. After consulting with 3 physicians experienced with Lu-PSMA treatments (in Australia, India and England), and two ROs here in Oregon, I have settled on the plan for a two-strike radiation treatment. The SBRT will be followed 4 weeks later with two Lu-PSMA-J591 treatments in Perth, Australia, two weeks apart. (I get a nice vacation in Oz, both Perth and Sydney areas, in the bargain!)

Considering how I might maximize the potential benefits of the radiation got me looking into radiosensitizers. The first question was whether I should stop the testosterone or even use an androgen blocker for the Lu treatments? The treating doctor there said "No". He finds it helpful to PSMA expression in cases like mine (oligometastatic HSPC), and wants me to stay on SPT from the SBRT on through the Lu treatments. I know this is opposite to the conventional thought that ADT at first increases PSMA, then later on decreases it.

He also wants me to stay on my metformin as a radiosensitizer (Something that improves effectiveness of radiation treatments against cancer). See:

sciencedirect.com/science/a...

A more expansive review of radiosensitizers reveals that some natural phytochemicals available as supplements are also radiosensitizers. These include, most notably, curcumin and resveratrol. And probably others that inhibit NFkB pathways, and PI3K- AKT-mTOR inhibitors. I know this

will create controversy here as generally any supplement with anti-oxidant potential is considered taboo with radiation.

There is a human clinical trial of using curcumin with RT for prostate cancer. Interesting in that it is supposed to be completed this very month, April 2022 with their 5 year follow-up data. Here it is:

clinicaltrials.gov/ct2/show...

And here is the full review article:

ncbi.nlm.nih.gov/pmc/articl...

By the way: One must ask the question that, since I have been on high dose testosterone (modified BAT) for a year, and I have two new PSMA avid nodes on PET scan that were not seen on my PSMA scan from a year ago. So does that imply that the testosterone has caused rapid progression of my cancer? Fair enough, it's possible. However, my PSA has not risen on testosterone. PSA remains around 0.10 to 0.14 at the end of each cycle. So I think it is more probable that the T has increased PSMA expression allowing previously present small LNs now to be seen on this scan. Time will tell.

(Note: There are no published clinical trials to support my choices for treatment here described. But they were chosen after much research, multiple consultants and approval from my MO and RO. I am aware of and accept, the risks including earlier death from PC, etc.) -Paul

Written by

MateoBeach

Male73 years oldUnited States

19 Replies

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RSH121 hours ago

I am also interested in RT and radiosensitizers. Metformin, curcumin, statins, rapamycin (sirolimus), melatonin, and EGCG are the ones I know of today that I am going to discuss with my MO. She thinks that metformin and statins are possibly beneficial. I'll also ask her about fasting with RT (she thinks it might have some benefit but I didn't ask her about using it in

conjunction with RT). She talked a lot about mTOR inhibition. I didn't ask her specifically about rapamycin which I have been taking for 3 years to inhibit mTOR (2 mg a week).

I was thinking of timing the RT a few weeks into a high cycle of BAT. Then drop down low during the RT. I'm not at the RT step yet and will research more if I am going to go that route.

You might find something of interest in these references.

1. Short RT and ADT for high risk PCa

a. Interim results of AASUR: A single arm, multi-center phase 2 trial of apalutamide (A) + abiraterone acetate + prednisone (AA+P) + leuprolide with stereotactic ultra-hypofractionated radiation (UHRT) in very high risk (VHR), node negative (N0) prostate cancer (PCa). | Journal of Clinical Oncology ascopubs.org/doi/abs/10.120...

b. prostatecancerinfolink.net/...

2. eSRT improves outcomes following RP if started when PSA is between 0.2 and 0.5 ng/ml renalandurologynews.com/hom...

3. Whole-pelvic radiation therapy for high-risk patients prostatecancerinfolink.net/...

4. ADT following radiation might be harmful for men with PSA ≤0.6 going into RT: Long-term hormone therapy increases mortality risk for men with low PSA levels after prostate surgery - American Society for Radiation Oncology (ASTRO) - American Society for Radiation Oncology (ASTRO) astro.org/News-and-Publicat...

5. eSRT superior to ART (in high-risk patients the advice is inverted, and ART has been found to be superior to eSRT)

a. urotoday.com/conference-hig...

b. scmp.com/lifestyle/health-w...

c. prostatecancer.news/2019/09...

6. Androgen Deprivation Followed by Acute Androgen Stimulation Selectively Sensitizes AR-Positive Prostate Cancer Cells to Ionizing Radiation – PubMed pubmed.ncbi.nlm.nih.gov/268...

7. Radiation Therapy with or without Bicalutamide for Recurrent pT3N0 Prostate Cancer After Radical Prostatectomy - Study Results - ClinicalTrials.gov clinicaltrials.gov/ct2/show...

8. Survival after radical prostatectomy versus radiation therapy in clinical node-positive prostate cancer - Chierigo - - The Prostate - Wiley Online Library onlinelibrary.wiley.com/doi...

9. SpaceOAR prevents some side effects spaceoar.com/

10. Hydrogel Spacer Prospective Multicenter Randomized Controlled Pivotal Trial: Dosimetric and Clinical Effects of Perirectal Spacer Application in Men Undergoing Prostate Image Guided Intensity Modulated Radiation Therapy – PubMed pubmed.ncbi.nlm.nih.gov/260...

11. Magnetic resonance imaging-guided versus computed tomography-guided stereotactic body radiotherapy for prostate cancer (MIRAGE): Interim analysis of a phase III randomized trial. | Journal of Clinical Oncology ascopubs.org/doi/abs/10.120...

12. ViewRay - MRIdian MRI-Guided Linac viewray.com/find-mridian-mr...

13. TRT following radiation ncbi.nlm.nih.gov/labs/pmc/a...

14. ADT preceding RT sensitizes PCa ncbi.nlm.nih.gov/labs/pmc/a...

15. Androgen deprivation followed by acute androgen stimulation selectively sensitizes AR-positive prostate cancer cells to ionizing radiation – PMC ncbi.nlm.nih.gov/pmc/articl...

16. Green tea/EGCG with Radiation cancer.gov/about-cancer/tre...

17. Curcumin with Radiation ncbi.nlm.nih.gov/labs/pmc/a...

18. Fasting

a. osher.ucsf.edu/patient-care...

b. news.usc.edu/41212/fasting-...

c. acsjournals.onlinelibrary.w...

d. cancercenter.com/community/...

e. mdpi.com/1422-0067/21/23/91...

f. ncbi.nlm.nih.gov/labs/pmc/a...

g. link.springer.com/article/1...

h. Note: my MO verified this.

19. Modulating Tumor Hypoxia in Prostate Cancer Through Exercise: The Impact of Redox Signaling on Radiosensitivity | Sports Medicine - Open | Full Text

sportsmedicine-open.springe...

20. Keto

karger.com/Article/FullText...

21. Rapamycin

bmcmedicine.biomedcentral.c...

22. Statins

a. sciencedaily.com/releases/2...

b. pubmed.ncbi.nlm.nih.gov/273...

c. ncbi.nlm.nih.gov/labs/pmc/a...

23. Abiraterone Acetate pubmed.ncbi.nlm.nih.gov/309...

24. Lovastatin

a. pubmed.ncbi.nlm.nih.gov/183...

b. Note: my MO verified this.

25. HCG tandfonline.com/doi/pdf/10....

26. Losartan pubmed.ncbi.nlm.nih.gov/268...

27. Nanocurcumin for Prostate Cancer Patients Undergoing Radiotherapy (RT) - Full Text View - ClinicalTrials.gov

clinicaltrials.gov/ct2/show...

28. Application of Radiosensitizers in Cancer Radiotherapy - PMC

ncbi.nlm.nih.gov/pmc/articl...

29. The melatonin immunomodulatory actions in radiotherapy – PMC

ncbi.nlm.nih.gov/labs/pmc/a...

30. Melatonin as a Radio-Sensitizer in Cancer - PMC

ncbi.nlm.nih.gov/labs/pmc/a...

31. ADT with Radiation

a. clinicaltrials.gov/ct2/show...

b. renalandurologynews.com/hom...

c. prostatecancerinfolink.net/...

d. clinicaltrials.gov/ct2/show...

e. ncbi.nlm.nih.gov/labs/pmc/a...

32. Frank, Steven J. “The Myths and Facts About Prostate Brachytherapy.” September 2021 grandroundsinurology.com/th...

33. 10-year survival after RT/ADT or RT/RP (comparing overall mortality (PCa, cardiac, etc) to PCa mortality for RT/ADT vs. RT/RP) mskcc.org/clinical-updates/...

34. Two years Bicalutamide clinicaltrials.gov/ct2/show...

35. Statins lower intracellular testosterone

a. healio.com/news/endocrinolo...

b. Note: my MO verified this.

36. Brief, intense radiation and hormone therapy for very high-risk PCa

a. prostatecancerinfolink.net/...

b. meetinglibrary.asco.org/rec...

37. Radiation kills CTCs clinicaltrials.gov/ct2/show...

38. Prazosin Effects of prazosin + radiation therapy on recurrence-free survival

Spyder54 in reply to RSH114 hours ago

Russ,Another deep dive. Thank you. No one ever, on the planet earth, will fault you for not doing your research! Please keep us updated.

Mike

RSH1 in reply to Spyder5411 hours ago

Thanks and will do. I'm hoping that mBAT lasts me many years but if needed, RT is an option.

Good luck to us all.

Russ

MateoBeach in reply to RSH15 hours ago

Thanks for the comprehensive reading list, Russ. Very valuable and I have read the majority of them.I am taking most of the ones you mention at this time: Atorvastatin, Metformin, Curcumin, Melatonin, and may restart Resveratrol just for this week. Not ECGC at this time. I am taking Rapamycin 3 mg twice this week (Days 1 & 3). Will not do senolytics including fisetin during the courses of treatment, but will resume a few months after, including 3 day program with Dasatinib and Quercetin.

London441 in reply to RSH13 hours ago

That’s a lot of info. I randomly picked 2 that totally contradicted each other, but I know you’re just providing sources, not presenting an argument.

It once again reminds me of the reality of our situation. Although living in different stages of a already heterogeneous disease, optimal overall heath gives us the greatest possible advantage of course.

The nuanced part seems to be how we survive treatment for it. ADT in particular is so hard on the body in multiple ways, presenting us with far greater mortality risk if we already have co morbidities going in. Most of us old guys have risk factors even if we think we're in great health, which most of us (erroneously) do.

It never surprises me to see long term ADT use associated with decreased survival.

On the other hand it also doesn't surprise me to see longer durations of it extend progression free survival, delay time to metastasis etc.

MO's and urologists generally assess a patient's ability to tolerate ADT side effects by looking them over. Not medically examining them, not running their numbers, no stress test, nothing. Just 'eyeballin'.

Those who carry risk when starting ADT are usually headed for trouble. Everyone potentially is obviously, but the unhealthy are really going into the snake pit. ADT exacerbates every single one of our heath risks.

So we use a lot of supplements, medicines off label etc. Great! Some make a difference, some don't, some even wind up doing the opposite of what's intended. But we learn along the way.

BAT, modified BAT, intermittent ADT, selective use of 2nd line anti androgens, other drugs…all of it potentially great-or not.

This is why I always promote exercise so much. It's so good that the 'proven' benefits of it are almost surely puny compared to actual.

Good diet is synergistic with the exercise. Good supplements are synergistic with both. For minimizing and eliminating treatment side effects it's unparalleled.

Yet ADT is so bad, many of us continue to have lasting harmful effects long after stopping it. We've heard of 'long Covid', I call it 'long ADT'. We need to be told by doctors in detail the risks with this stuff going in-and to varying degrees we are not.

That's what makes this site so great. We are looking out for each other as best we can.

RSH1 in reply to London4412 hours ago

I frequently post conflicting studies if I find them.I don't want to become attached to a therapy and cherry pick studies to confirm my bias. Believe it or not, I even found a study that concluded exercise was bad and obesity was good. I found maybe a hundred that show the opposite.

Very heterogeneous as you said. And those who focus only on cancer specific survival and ignore overall survival and QoL baffle me.

Some doctors do that with ADT. We need better info and this site helps provide it. Real world experiences.

Last edited by RSH1

London441 in reply to RSH11 hour ago

Again, thanks. I love the conflicting studies. Informative in its own right.

Yes my MO deemed me to be a good candidate for concurrent post RP Lupron, abiraterone, chemo and radiation based on my apparent good health. In retrospect, glad that wasn't illusory.

ragnar202020 hours ago

Hello Paul,

Best of luck with your plans and your trip down under. I'll be watch for your progress reports.

CAMPSOUPS in reply to ragnar202018 hours ago

I'm optimistic for good results. Either way a trip to Oz is always a good thing.Safe travels and hope for the best outcome.

MateoBeach in reply to ragnar20205 hours ago

Thank you, brother.

Blackpatch18 hours ago

Hell Paul

The only thing I can find fault with is the choice of Sydney rather than Melbourne as an add on to your holiday plans....

Stuart

MateoBeach in reply to Blackpatch5 hours ago

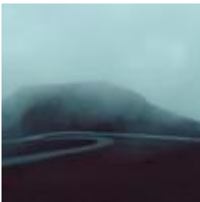
Thanks for the suggestion. I do pass through there, so will consider adding a stop. 👍👍😎

Spyder54 14 hours ago

Paul, best of luck on this journey down under. I first thought oh-oh, his mBat allowed these new nodes. I think your synopsis is prob correct. More PSMA avid from increased T.Im curious about cost. Im sure Insurance will not cover out of country. Im 90 days since 5 hypofractionated SBRT with MRI and CT guidance to primary Prostate, and 3 to T5 in spine (approx 7.5 greys to each of 8 sessions).

Thanks,

Mike



Schwah 12 hours ago

I too am hormone sensitive with ogliometastatic PC and I too am considering LU77. My MO (who is willing to think out of the box) was concerned about the amount of radiation with lu77 as he thinks I'll be around awhile. Any concerns there? What are your cost estimates including travel and estimated time away? What have you learned about LU77 for hormone sensitive men that has made you decide to take this path ? Thx in advance Mateo for taking the time to answer.

Schwah

MateoBeach in reply to Schwah 4 hours ago

See my reply above to Spyder54. Two treatments with this ligand instead of 4-6 with -617 or I&T, and much less total Lu isotope. No renal nor salivary toxicity. However, it does suppress bone marrow temporarily with very high rates of anemia. 25% require RBC transfusion and 10%

platelets. But is short term and resolves. Hoping that my high dose testosterone cycles and healthy baseline CBC counts will see me through. Risk vs Benefit calculus. ⚖️ For me: 👍 💸

RCOG20004 hours ago

Veyonda. Under study. By australian company Noxopharm. Compamy founder is also a PC patient

MateoBeach in reply to RCOG20003 hours ago

Yes RCOG, thank you for reminding me. I had been offered compassionate Veyonda through my Doc there, Nat Lenzo, a few years back. Haven’t heard much about it lately except they had been trying it also for COVID. I will inquire again today if there would be any advantage on including it for its abscopal effects