Q&A - Dr. Neil McKinney - Supporting the Chemotherapy Patient

Q1: Can you restate which chemos to avoid Quercetin?
A1: Mercaptopurine
Taxanes – such as Paclitaxel, Taxotere.
Tarceva (erlotinib)
Velcade (bortezomib)

Q2: Could you use this same Phytochemicals for chemoprevention and for cancers?
A2: Prevention is hard to prove, but I believe so. I know other tricks for prevention and therapy beyond what is in this lecture. There are many kinds of cancers, and I try to match remedies to the specific drivers of that type of cancer. There is no "one size fits all'.

Q3: What form of curcumin are you currently recommending? Is it still Theracurmin?
A3: Theracurmin is good, but I now use and recommend NFH's water soluble Curcumin H2O SAP.

Q4: Do you have any concerns about B6 when homocysteine is elevated due to the glutathione conversion with active cancer?
A4: B6 is entirely benign in cancer.

Q5: Can you clarify comments on glutamine, yes or no with chemo?
A5: Glutamine is clearly beneficial in chemotherapy, and this is well published. It reduces or eliminates GI issues from in the mouth to the other end. However, it is NOT to be continued past chemo, and I usually give it only when symptoms demand it.

Q6: What is your go to items for pre-surgery support? MCP etc.?
A6: Avoid for 1 week all supplements which could impact anaesthesia or blood clotting. p. 52.
Surgery mix – homeopathic *Arnica, Staphysagria, Hypericum* 6C 5 drops under tongue 3X/d.
Low-salt intake.
Lots of zinc, vitamin A and vitamin C eg fresh, raw or juiced fruits and vegetables. See p.99.
Manage post-op inflammation and metastasis with NFH *AntiOx-SAP* 2 caps 2-3 times daily, or green tea EGCG 700 mg X3, or *PectaSol-C* modified citrus pectin 4 caps twice daily.
Scar management with catechins, vit. E, rosehip oil, emu oil, Allya injection.

Q7: When using IV Vit C; same day as chemo or couple days after?
A7: Same day is ideal, or as close to it as possible.

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Q8: Should all patients with a history of cancer avoid supplemental B-12 or only patients on chemotherapy?
A8: Only use more than is typically a 1-a-day multivitamin = minimal dose if in full remission. Test for B12 status and do not use unless medically necessary. Do not just give for any anemia or fatigue. It is a tonic to cancer.

Q9: What do you think about oxygen hyperbaric therapy as part of an individual's treatment plan?
A9: I am fully trained in hyperbaric medicine and chamber safety and design. I was taught in the physicians UHMS course to avoid it in cancer, that it was at best a fraud and useless, but more likely was harmful. Since then, Dr. Paul Anderson NMD has convinced me it is good in cancer, and I say so in my new book. However, it is only a part of a metabolic therapy protocol, it is necessary to provide other HIF inhibitors and therapeutics. I suggest you see Paul's training videos on this.

Q10: Do you look into individual's epigenetics to identify any SNPs in the various pathways eg nutrients (like Vit D, Vit A etc) methylation, detoxification, hormones, Metabolics, to understand their key SNPs which might help tailor an individual's programme?
A10: Personally, I never got into that kind of testing but see value in it. My research group is actively pursuing biomarker testing such as for succinate, HIF, etc. We are trying to establish standards, reference ranges, etc. Not so much gene oriented, but that would add to the mix. We definitely want to personalize the targeting. We are working with some labs on some new tests.

Q11: Would you rather use berberine or metformin? Or both? What dose of these compounds are recommended?
A11: I would always use berberine first in cancer, as it has a broader action, but test at some point verify some efficacy, eg. blood sugar improvement or immune cell ratios. Berberine is commonly dosed at 300-500 mg bid. It can upset the GI tract in some people. Metformin is commonly dosed at up to 500 mg bid, but only after starting low and slow. Nausea is common.

Q12: What was his comment about pancreatic Cancer and being Vegan?
A12: Pancreatic cancer is highly dependent on glutaminolysis. A vegan diet is very low in glutamine. Not that everyone will switch or thrive as a vegan, but at least for some intervals it helps. Green tea EGCG and I3C/ DIM are essential.

Q13: What do you think about Methadone?
A13: Theoretically it should stimulate cancer growth, but I do not know if it does so to a significant degree. Since opioid poisoning is such a high risk of killing a patient faster than cancer, I would not question its necessity. I could not prescribe it under my license and am not expert in addiction care.

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Q14: In someone with a slow COMT SNPs, would you still use quercetin and risk the negative impact on clearance of dopamine, catecholamines estrogens?
A14: This is out of my depth. I doubt it is a major contraindication, but there are rare AEs from quercetin, and it may be in this population. I would proceed but start dosing low and slow.

Q15: How effective is slippery elm for mucositis?
A15: I think it can provide temporary relief, but vit. U heals them rapidly, its not just a band-aid.

Q16: Any experience using plant sterols to promote a Th1 shift for cancer?
A16: No experience with that in mind, but I have used plant sterols for immune issues. I just looked it up and it appears you are correct that it skews to Th1. Thanks. By the way, I have rare gene that gives me a completely paradoxical reaction to sterols, it cranks up my cholesterol and makes me have PVCs that can land me in the hospital. About 1% of the population have this.

Q17: Is there any concern that curcumin and EGCG may negate each other's impacts?
A17: Not at all, that idea was debunked many years ago. Lots of combo studies showed benefit and synergy.

Q18: Would you recommend any probiotic in a patient with a lot of diarrheas?
A18: I haven't seen that be very effective at stopping diarrhea acutely, at least in my day. However, I think it is healthful and definitely helps restore the gut once it slows down.

Q19: Forgive me if I missed this, what milk thistle supplement did Dr McKinney use for the patient with kidney failure?
A19: I did not say, as this was in the CE portion, where brand names are taboo. It was Vitazan Milk thistle Combination 3 caps bid. I have many other non-oncology cases with the same miraculous benefit.

Q20: Does your book also include a list of contraindicated supplements for cancer in general and also for specific cancers?
A20: Yes, in great detail in naturopathic Oncology 4th edition.

Q21: Did he say no B12 in chemo, or no B12 in cancer in general?
A21: No B12 in cancer in general, unless a proven deficiency is proven and then in moderate short-term dosing, stop when in the normal range. It is a strong tonic to tumors!

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Q22: What is the name of Chinese formula that contains Vitamin U? would you please spell it?
A22: *Fare You*

Q23: Can we take mistletoe orally or is it just injection?
A23: Only by injection – SQ, peritumoral and IV.

Q24: What is the best support for people on Parp inhibitors or Herceptin?
A24: From *Naturopathic Oncology* 4th edition: Herceptin or trastuzumab is a humanized anti-HER2 monoclonal antibody which binds to trans-membrane growth factor receptors. These receptors bind to epidermal growth factor EGF and platelet-derived growth factor PDGF and activate tyrosine kinase activity inside the cells. Herceptin also inactivates breast cancer stem cells. Herceptin is effective against HER2 / neu positive breast cancer. Disease free survival is increased about 40% and overall survival is increased by about 34%. Treatment for 1 year is enough; even 6 months may suffice. Unfortunately, it creates a five-fold increase in risk of significant heart damage and heart failure. Before it is given the doctors will do a MUGA radionucleide scan to determine your ejection fraction EF. The EF is the percentage of the blood inside the heart chambers which can be pushed out with a single beat of the heart. Leftventricular ejection fraction LVEF is normally 50 -75%, usually over 60%. Herceptin will typically not be given if you start at an ejection fraction under 55%. During treatment, if the LVEF falls below 50% the Herceptin treatment may be suspended Naturopathic physicians can improve heart function rapidly and safely to qualify patients for this therapy, keep them in it long enough for it to be curative, and to repair the cardiac damage afterwards. We use the herb *Centella asiatica* and the herbal alkaloid extract berberine as cardio-protectants. To restore LVEF give *Convallaria majus* and *Crataegus oxycantha*, co-enzyme Q10, omega 3 oils, grapeseed extract, vitamin E, and homeopathic remedies such as *Naja tripudans*. We may prescribe 32 mg daily of Candesartan, an angiotensin receptor blocking drug, to protect the LVEF. Please, do not enter into Herceptin therapy unprotected! The related anti-HER2 drug Perjeta is often given concurrently. Herceptin is now often combined with Tykerb (lapatinib), though there may be increased risk of neutropenia, diarrhea, skin rashes and liver toxicity.
Avemar and Metaprol Pro are fermented wheat germ extracts (FWGE) are… a mild poly ADP-ribose polymerase (PARP) inhibitor. Other PARP inhibitors include red wine, coffee, niacin, and R-alpha lipoic acid.

Q25: I want to support my patients after their breast cancer chemotherapy and are on either tamoxifen or an aromatase inhibitor. Are there supplements to avoid in these patients?
A25: I recognize that tamoxifen is a prodrug and needs CYP2D6 to be activated.
From *Naturopathic Oncology* 4th edition: Aromatase inhibitors (AI) block the enzyme estrogen synthetase, found in the liver, fatty tissue, muscle, skin, breast, which converts androgen or masculine hormones into estrogens or female hormones. Androstenedione is converted into estrone, and testosterone is converted into estradiol. Estrone estrogen is moderately growth stimulating, but estradiol is the most potent form of estrogen for promoting breast cancer cell growth. Men have this enzyme in their bones, to make bone-building estrogen from testosterone. Aromatase inhibitors are not effective in pre-menopausal women, as they cannot overcome other hormone sources such as the ovaries. To qualify, the patient must be at least 12 months since the last menstrual period, and have estradiol in the post-menopausal range < 59 pg/ml. Sometimes LHRH agonist

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drugs are used in peri-menopausal women to ablate the ovaries and induce a premature menopause, to allow use of the AIs. AIs are effective for post-menopausal breast cancer, reducing circulating estrogen about 80 - 95%. AIs are now approved as first-line therapy in post-menopausal ER+ metastatic breast cancer. They can achieve a 40% reduction in metastases, a 43 - 50% reduction in local reoccurrences, and an 18% reduction in deaths from breast cancer. About 70% of breast cancer cells produce aromatase, and levels directly correspond to COX-2 expression. COX-2 creates prostaglandins, which promote the expression of the aromatase gene CYP19. COX-2 inhibitors may well produce a nice synergy with quercetin. My clinical experience with such combinations has been positive. The third-generation oral aromatase inhibitors include the reversible nonsteroidal agents Anastrozole and Letrozole, and the irreversible steroidal inhibitor Exemestane. They are beneficial to patients with ER+ tamoxifen-refractory metastatic breast cancer. Time to disease progression is similar to tamoxifen therapy, and so is overall survival, but AIs cut breast cancer reoccurrence about 3% more that does Tamoxifen. Menopausal symptoms occur, but are less severe than with tamoxifen, other than increased bone loss. There is also a significant reduction in the incidence of contralateral breast cancer, and a small reduction in distant metastases and endometrial cancer. Aromatase inhibitors may be 251 used in ER+ early-stage postmenopausal breast cancer, especially in those intolerants of Tamoxifen, or concerned about thromboembolic risk. Melatonin is a vital support in all hormone-dependent cancers, at up to 20 mg at bedtime, to tolerance. Letrozole or Femara is an aromatase inhibitor capable of reducing estrogen and estrone twice as much as Anastazole. Letrozole increases triglycerides in the blood, but Anastrazole has little impact on blood lipids. When Letrozole fails, about 15% of cases can be rescued by the related drug Exemastane or Aromasin. Steroidal type AI's such as Exemestane promote less bone loss, and inhibit late bone reoccurrences in the bones, but do not inhibit early reoccurrences as well as the non-steroidal AI drugs. Exemestane is atherogenic, increasing arterial plaque by raising the LDL/HDL cholesterol ration and ApoB/ApoA lipoprotein ratios. This translates to a 1% increased risk of severe cardiac events. 96% of those prescribed AI's get some adverse reactions. Joint pains and stiffness commonly occur from AI's, particularly if the patient has been on Taxane chemotherapy prior to use. About 20-30% of women will get joint pain, carpal tunnel syndrome or tendon and synovium effusions. About 5% of women prescribed AI drugs quit the therapy because of pain. Low-dose Naltrexone (LDN) often eases AI myalgia, and helps the immune system kill cancer cells. Omega 3 oils out-perform most arthritis remedies for AI pains. Olive oil also support AIs, via the endocannabinoid system. Vitamin D3, devil's claw root extract, New Zealand green-lipped muscle extract, and cherry juice can be quite helpful. Consider Ruta graveolens and vitamin B6 therapy for tendon and synovium effusions, and homeopathic remedies such as Bryonia alba, and Rhus toxicodendron. Vitamin B12 may reduce AI musculoskeletal pain. A naturopathic oncologist suggests Flexnow BSP201 high triterpene shea nut extract to manage cytokines and inflammation. Diuretics may help. Exercise definitely helps too. Arthralgias tend to ease up after about 6 months of intake. Other possible side effects are limb swelling, anxiety, flu-like symptoms, cough, vaginal dryness, vaginal atrophy, generalized pain, acute hepatitis, and stroke. Arimidex (anastrazole): report elevated cholesterol, chest pain, shortness of breath or heart rhythm disturbance to your physician. Letrozole (femara): blood clots, ie myocardial infaction aka heart attack. Aromasin (exemestane): hypertension. If resistance develops to hormone therapies such as aromatase inhibitors or Tamoxifen, give mTOR inhibitors. Natural remedies which inhibit mTOR include indole-3-carbinol, green tea EGCG and curcumin. Paradoxically, if resistance to these drugs develops, a brief prescription of estradiol will induce apoptosis via increased Bcl-2 proteins. Once the tumour/s shrink a bit, AI therapy can be resumed. Quercetin and grapeseed extract procyanidin dimers appear to be the strongest natural AI's. Grapeseed is able to reduce estrogens by about 80%, equivalent to early AI drugs. Green tea extract / EGCG is synergistic with AIs. I prescribe my creation Anti-Ox SAP, from NFH, containing green tea extract, grapeseed extract and water-soluble curcumin, for its anti-cancer and anti-inflammatory properties. White button mushrooms Agaricus bisporus are a natural aromatase inhibitor. Normalize estradiol with 10 grams daily of

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mushroom powder eg 5 scoops of NFH brand Agaricus bisporus SAP. Other natural aromatase inhibitors include reishi mushrooms, red wine, resveratrol, flaxseed, zinc, passionflower chrysin, soy genistein, and natural progesterone. Non-steroidal AI's such as Letrozole or Anastrazole markedly effect bone loss in the first 6 months of therapy. This translates to a 1 – 2% increased risk for osteoporosis. AIs significantly degrade bone health - so it is mandatory to support bone density, mass and strength. For example, Arimidex increases risk of fracture 40% in 5 years use, reducing bone mineral density by 5 to 7%, enough to push an osteopenia patient into frank osteoporosis. It is now a standard to prescribe bisphosphonate drugs such as Zoladex, Clodrinate, Palmidronate or Fossamax to maintain bone mineral density. Naturopathic medicines can be combined with the bone building drugs for the best results. Vitamin D3 or 25(OH)D is effective to absorb and retain calcium, although we do not want to give high doses, as it is a potent stimulator of the P450 cytochrome responsible for metabolizing aromatase drugs and raises E2 estrogen levels. I prescribe 1 to 3 daily of 120 mcg MK-7 vitamin K2 with 1,000 to 3,000 IU vit. D3. Vitamin K2 drives the calcium into the bones, sparing other tissues from calcinosis, reducing 252 cancer and cardiovascular risk. Exercise is an essential requirement for bone health. I am not a strong proponent of calcium supplements. Calcium supplements are far less important than D3-K2, exercise and strontium. Microcrystalline hydroxyapatite ossein complex is a bone meal product with actual bone growth factors which build bone density and mass far faster than bisphosphonates, increasing new bone, not just reducing bone loss. This means increased strength, therefore better protection from fractures. Strontium is a mineral which definitely reduces fractures, but must be taken well away from calcium supplements, as they compete for absorption. If bone density is low give 2 of 340 mg AOR strontium citrate capsules at bedtime. Always give vitamin K2 with strontium to reduce clotting risk. Strontium now carries a warning of possible increase in stroke risk, due to studies on a drug version called strontium ranelate. I do not believe it is a risk to take strontium citrate, but some prominent doctors disagree. Some skeptics also say that bone density scans may appear to be twice as dense as they really are. I repeat, it reduces fractures, safely, in my decades of experience.

Q26: Any issues with Magnesium citrate for constipation? How do you feel about Restoralax?
A26: Both are good remedies I would use.

Q27: Can be Berberine and Metformin used together?
A27: I would always prefer berberine in the cancer context, it is more broad acting. It can also be used when metformin is poorly tolerated. Berberine tends to give diarrhea in some while metformin provokes nausea, sometimes a combo hits the sweet spot. In diabetes I like metformin due to the evidence of efficacy. They are similar, but not identical.

Q28: Can you expand on the use of glutathione with cancer? Is it contraindicated with use of chemo or cancer in general, and what is the biochemistry?
A28: Cancer cells generate, sequester and accumulate glutathione and are avid for it. It is its primary defence against ROS from its accelerated metabolism. It can stimulate cancer growth and spread and ruin efficacy of chemo and radiation. Its only rational use in oncology is on palliative care, at which point the tumors are saturated anyway. There is a tremendous amount of research published on this and ONCANP elders all agree on this opinion. It is not a theory.

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Q29: Can you comment on the dosages of Panax ginseng/Shiquan Da Bu, Wan?
A29: I do not endorse ginseng but used Shih Chuan Da Bu Wan aka Shiquan at 15 pellets bid.

Q30: Rx: Yunnan Bai Yao
A30: 1-2 capsules bid, tid in an emergency. Also comes in powder but get the capsules. Ignore the little red pill in the blister packs, it is for treatment of shock.

Q31: Geranium-Capsella dosages?
A31: 20-30 drops tincture bid.

Q32: Whey protein-alternatives if casein intolerant? Or is it a problem?
A32: Not a problem, casein is the curds, and the whey is separated and usually pretty pure. When in doubt go low and slow.

Q33: Do you have any opinions on the Galleri test?
A33: I have no experience and have not discussed it with any peers. In general, I did not go for any expensive testing, usually the local MDs and the sole cancer care provider (a government agency) did all the standard tests. I ordered some CBCs but never circulating tumor cell counts, wet biopsies, RGCC, nagalase, etc.

Q34: With the continual emergence of berberine's potential beneficial effects—and therefore popularity, what risks are there of the depletion of berberine containing herbs, such as already endangered goldenseal and others?
A34: Goldenseal was depleted some time ago, but fortunately there are several sources of berberine that are not in short supply for wildcrafting or cultivation, including Oregon grape (Berberis aquifolium), Barberry (Berberis vulgaris) and Coptis.

Q35: Any oxalate concerns with turmeric?
A35: No, it is not clinically significant.