

Cancer and Related Case Studies Involving Salvestrol and CYP1B1

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Abstract *Salvestrols are naturally occurring, metabolically active substances that act as anticancer prodrugs when metabolically activated by the Cytochrome P450 enzyme, CYP1B1. They are phytoalexins and as such are induced in response to pathogens. As phytoalexins they do not fall neatly into any of the classes of phytonutrients. Some are stilbenes, some are antioxidants, some are phytoestrogens while others fall outside of these categories. Salvestrols obtain their anticancer activity not as a member of some phytonutrient class but rather through their metabolism by CYP1B1. Unfortunately, Salvestrols are deficient in western diets due to the modern agricultural practices that minimize the risk of predation through the use of fungicides with the consequence of minimizing the conditions for induction of these compounds. It is in organically grown foods that salvestrol levels are highest. To illustrate the breadth of a nutritional approach to cancer treatment using Salvestrols, cases are presented here that cover stage 1 breast cancer, squamous cell carcinoma of the anus, chronic lymphocytic leukaemia, primary peritoneal carcinoma and a case of benign prostatic hyperplasia. Four of these cases highlight how rapidly one can recover once nutritional deficits are addressed without recourse to conventional treatment.*

Introduction

Salvestrols represent a class of naturally occurring metabolically active substances that act as prodrugs through their activation by the Cytochrome P450 enzyme CYP1B1.^{1,2} Specifically, CYP1B1 metabolizes Salvestrols to produce a metabolite within the cancer cell that induces apoptosis.^{3,4} CYP1B1 has been found to be expressed in all cancers, regardless of oncogenic origin, while being absent from healthy tissue.⁵⁻⁸ It is now widely regarded as a universal cancer marker and the therapeutic and diagnostic implications have been outlined.^{9,10} CYP1B1 is currently being utilized in the development of

diagnostics for early cancer detection and monitoring.¹¹

This relationship between Salvestrols and CYP1B1 results in a highly targeted, dietary rescue mechanism for killing cancer cells.^{3,5} Modern agricultural practices, through the widespread use of fungicides, have significantly depleted Salvestrols from our foods making it difficult to take full advantage of this rescue mechanism through our diet alone.^{12,13} Salvestrols are secondary plant metabolites that are induced in a pathogen specific manner in the face of a threat to plant health. When fungicides are used there are minimal signals to induce

production of these secondary plant metabolites. This is why organically grown produce contains significantly higher levels of Salvestrols.¹⁴ Within the context of a nutritional approach to cancer this Salvestrol-CYP1B1 rescue mechanism appears to significantly reduce the number of cancer cells in the body and to increase the chances of a successful outcome.^{15,16}

In 2007, five individuals agreed to participate in case studies.¹⁵ The cancers involved included: stage 2-3 squamous-cell carcinoma of the lung; stage 4 melanoma; prostate cancer; aggressive, stage 3 breast cancer; and bladder cancer. Each of these individuals had a complete recovery from their cancer. In 2010, an additional six individuals agreed to participate in case studies.¹⁶ The cancers that these individuals were diagnosed as having included: stage 3 breast cancer; stage 2 liver cancer; colon cancer; a recurrent prostate cancer; a further prostate cancer with a Gleason score of 6 (3+3); and a stage 3B Hodgkin's lymphoma. Again all six individuals had a complete recovery from their cancer.

We wish to report five new cases. These cases represent a variety of therapeutic approaches such as: declining conventional treatment in favour of a purely nutritional approach; accepting a conventional approach but turning to a nutritional approach after dissatisfaction with the conventional therapy; partial acceptance of conventional therapy for a first diagnosis but rejection of conventional therapy in favour of a nutritional approach for the second diagnosis; and acceptance of both conventional therapy and a nutritional approach in tandem. A diverse array of cancer is represented including breast cancer, squamous cell carcinoma of the anus, chronic lymphocytic leukaemia, primary peritoneal carcinoma and a case of benign prostatic hyperplasia. These cases are presented to convey the breadth of applicability of Salvestrols as a nutritional approach in the hopes that clinicians and patients will see the benefits of including nutritional therapy in disease management.

Throughout these cases Salvestrol intake

is described in terms of a "total Salvestrol points" scale rather than milligrams of active ingredient. Adequate nutrition supplies different Salvestrols varying widely in potency.¹⁷ This diversity is reflected in Salvestrol nutritional supplements. In combating active disease it is the delivery of sufficient potency per volume of ingredients that is important. Representing dosage in milligrams would not be a meaningful way of ensuring that an adequately potent intake is achieved. Salvestrol points have therefore been devised as a metric to standardize intake appropriate to a mixture of Salvestrols with differing individual potencies. Standard therapeutic dosing falls between 4,000 and 6,000 points per day depending on the patient's body mass index (BMI). Patients are advised to ingest a mixture of Salvestrols providing 4,000 points if their BMI is below normal, 5,000 points if their BMI is normal, and 6,000 points if their BMI is above normal. This dosing can be adjusted upwards depending on the response rate of the patient.

Case #1: Stage 1 Breast Cancer

A 76-year-old female detected six lumps at the surface of her right breast while showering. Her doctor ordered a biopsy which came back negative. A second biopsy was ordered and this biopsy confirmed that the lumps were cancerous. She was told that she had Stage 1 breast cancer but was not told the type of breast cancer. The treatment offered was a pharmaceutical aromatase inhibitor, Femara® (letrozole), 2.5 mg tablet to be taken daily. She declined this treatment. A friend suggested that she supplement her diet with Salvestrols. The patient immediately began a three week course of Salvestrols comprising two Salvestrol Professional capsules and two Salvestrol Gold capsules per day. Professional and Gold capsules contain a different Salvestrol respectively, with this particular combination providing a total daily intake of 1,400 Salvestrol points. One capsule of each Salvestrol was taken with breakfast and one of each taken at the end of the day. No additional supplements, alternative treatments, or prescription medications

were taken, and no other dietary or lifestyle changes were made. The patient has always included walks into her daily routine and has always had a well-balanced diet.

The patient reported that after 10-12 days of Salvestrol supplementation, through breast self-examination, she could feel that the lumps had started to shrink. During the third week of Salvestrol supplementation she could no longer feel any lumps in her breast. She also experienced no side effects from the supplementation, a situation that she was very pleased with.

In the month following her diagnosis her doctor ordered both computerised tomography (CT) and mammogram X-ray scans. No cancer was found. Femara® (2.5 mgs once per day) was again prescribed, this time to protect against recurrence of the cancer. She has taken Femara® for two years since she became cancer free and has a check-up every three months. During this time she has suffered from nausea and dizziness. When her attending physician confirmed these to be side effects of the Femara® she decided to stop taking Femara® and resumed Salvestrol supplementation. She is now taking one or two Salvestrol Platinum capsules per day. Each Salvestrol Platinum capsule provides four different Salvestrols with a combined intake of 1,000 points. The lack of side effects with Salvestrols was a deciding factor in her decision to decline further Femara® treatment and to return to Salvestrol supplementation. She is healthy, happy and very pleased to be free of her cancer.

Case #2: Squamous Cell Carcinoma of the Anus

A 46-year-old male was diagnosed with squamous cell carcinoma of the anus. The diagnosis was confirmed with a biopsy and his doctor recommended an abdominoperineal resection. The patient declined the resection and was told that he had a life expectancy of just three years without it. He embarked upon a series of mental wellness exercises aimed at a positive health outlook along with twice weekly applications of Aldara® (imiquimod) cream which stimulates the

body's immune defences.

The condition persisted and seven years later he was re-diagnosed. The second diagnosis of squamous cell carcinoma was again confirmed by biopsy. The patient was again advised that an abdominoperineal resection was required and without it a three year life expectancy was predicted. The patient declined the resection and carried on with mental wellness exercises and twice weekly application of Aldara®. The patient found treatment with Aldara® an uncomfortable and painful way to minimize disease progression.

Three years after the second diagnosis the disease progressed to the point where the anal lesions were appearing much more frequently. The patient went for a consultation with a surgeon who specialized in laser surgery for such conditions.

Prior to rendering a decision regarding the laser surgery option, the patient began treating the condition with a combination of Salvestrols and XM8 cream (i.e., a natural borage oil based cream) and stopped use of Aldara®. For a period of three months the patient took one Salvestrol Platinum (1,000 points) capsule per day and applied XM8 cream every two to three days.

In addition, the patient continued with mental wellness and daily physical exercises, took a multi-vitamin, ate a diet that included a high proportion of raw vegetables and took a "green shake" each day. No pain medications were taken and no additional supplements were consumed. After a period of six weeks since starting to take the Salvestrols the lesions were no longer visible. At the end of three months he was deemed to be all clear. Although he requested a biopsy to confirm his cancer free status, his doctor has not obliged.

Case #3: Chronic Lymphocytic Leukemia

An 80-year-old woman presented to her family doctor with an "egg sized" tumour on the left side of her neck. She was referred to an oncologist and then an ear, nose and throat specialist who took a biopsy of the tumour. Soon after seeing the specialist her

condition deteriorated. The lymph glands in her groin and armpits were swollen and a scan was arranged.

The biopsy confirmed a diagnosis of chronic lymphocytic leukaemia. Chronic lymphocytic leukaemia has a variable prognosis and an exceptionally rare rate of spontaneous remission, especially among individuals who were not diagnosed in the early stage of disease progression.¹⁸ The woman was told that it was difficult to provide her with an accurate prognosis – it could be anytime between two days and two years.

Subsequent to receiving her diagnosis her condition declined further. She suffered from severe pain in her throat causing great difficulty eating and sleeping. She began to lose weight. She returned to the ear, nose and throat specialist who took a biopsy of an ulcer on her tonsil. The biopsy revealed that the tonsil ulcer was part of the chronic lymphocytic leukaemia. She was referred for radiotherapy by the oncologist.

She noticed that a tumour was also beginning to show on the right side of her neck and the swelling in the groin and armpits continued. While discussing her situation with a friend she learned about Salvestrols and began a three month course of two Salvestrol Platinum (1,000 point) capsules per day. One was taken with breakfast and one was taken at dinner. She also decided concurrently to take a more relaxed approach to life, dropping some of her obligations and modified her diet to include more fruits and vegetables.

After one month of Salvestrol supplementation she started feeling much better and the tumours in her neck had started to soften and shrink. This early result coincided with her appointment with the radiotherapist. She attended the appointment, but told the radiotherapist that she was feeling so much better. She chose to decline the radiotherapy, and instead wanted to see if these positive results would continue. The radiotherapist respected her decision, and told her that she could always call and book radiotherapy at another time if she changed her mind.

She was pleased with her decision to decline the radiotherapy and after two months,

while continuing Salvestrol supplementation, the tumour in her neck had almost disappeared. At the end of the third month of Salvestrol supplementation the tumours in her neck had completely disappeared. She returned to the oncologist and was informed that he could find no evidence of cancer. The oncologist mentioned being very surprised by her current good health and weight gain.

Upon hearing this news she stopped taking Salvestrols but carried on with her more relaxed lifestyle and dietary change. She has recently returned to Salvestrol supplementation to prevent recurrence of the cancer and is currently taking one 1,000 point Salvestrol Platinum capsule per day. She is feeling very good and hopes that her experience will be of assistance to others.

Case #4: Benign Prostatic Hyperplasia

A 50-year-old male presented to his physician with lower urinary tract symptoms including weak flow and nocturia. A digital rectal examination revealed a significantly enlarged prostate. His prostate specific antigen test results were within normal limits. The patient was diagnosed with benign prostatic hyperplasia (BPH) and was informed of the various medication options to control his condition. These would include a low dose alpha blocker, followed by a higher dose alpha blocker if relief was not found. If relief was still not found a 5alpha-reductase inhibitor would be tried. Whichever option produced relief would be required for life – a situation the patient found distressing.

The patient was prescribed a low dose, 0.4 mg, of the alpha-adrenergic blocker, Flomax[®] (tamsulosin) to be taken once daily and asked to minimize his fluid intake after early evening. The patient initially complied with moderating his fluid intake, but quickly found this too difficult to maintain. No beneficial change was noted in the first week of Flomax[®] use. In the second week of use there was stronger urinary flow and diminished nocturia. These benefits lasted for two months at which time the benefits slowly diminished, and by the end of the four month prescription little lasting benefit

remained. Throughout the course of Flomax[®] treatment the patient experienced a low grade, dull headache upon waking in the morning. The headache subsided as the day progressed.

With the first prescription for Flomax[®] finished and knowing that the next treatment option was simply a higher dose the patient began looking for alternatives. After hearing anecdotal accounts of relief from BPH using Salvestrols the patient began a course of taking one Salvestrol Gold capsule (350 points) each morning. Within a month the incidence of nocturia had dropped down to once a night, sometimes not at all and the flow was as strong or stronger than it had been during the period when Flomax[®] was working most effectively. After three months of Gold the patient switched to Salvestrol Platinum (1,000 points per capsule). He reported that there was a noticeable improvement in terms of decreased incidence of nocturia and increased strength of flow. Although unable to quantify the improvement, he noted that he no longer had to be as mindful of his evening fluid intake.

Concurrent with his treatment for BPH the patient maintained a daily regimen of vitamin supplementation, which included a multivitamin, a B-complex vitamin, and vitamins C and D₃. No other dietary or lifestyle changes were made throughout this period. The patient enjoys a healthy, balanced diet that includes organic foods whenever practical to do so.

The patient, still taking Salvestrol Platinum, is enjoying a level of relief from BPH symptoms that is at least as good, if not better than the Flomax[®]. Unlike Flomax[®], the symptom relief found with Salvestrols has not diminished over time, and has not been associated with daily headaches.

Case #5: Stage 3 Primary Peritoneal Carcinoma

A 57-year-old female presented to her physician with a very swollen abdomen, loss of appetite, and fatigue. A CT scan, a cancer antigen (CA-125) result of 7,250 and a subsequent biopsy all led to a diagnosis of stage

3 peritoneal carcinoma, a rare and aggressive cancer, with metastases in the ovaries. The patient was in a high risk category for cancer due to the occurrence of abdominal cancers in her immediate family. She was told that the condition was treatable and a course of three rounds of chemotherapy, a month of rest, a hysterectomy, a further month of rest, followed by the three remaining rounds of chemotherapy was recommended. The patient accepted her physician's recommendation and commenced an intravenously delivered course of Paclitaxel (for three hours) followed by Carboplatin (for one hour) every three weeks. Ondansetron was prescribed twice daily for two days following chemotherapy to manage nausea and vomiting; however, its use was intermittent due to its constipating side-effect.

Concurrent with the onset of chemotherapy, the patient embarked on an alternative treatment plan under the direction of a homeopathic physician and a medical herbalist. She commenced a course of Salvestrol supplementation consisting of three Salvestrol Platinum (2,000 point) capsules per day comprising a daily total of 6,000 Salvestrol points. In addition she took three astragalus capsules per day. The homeopathic remedies included: Lachesis (three times daily); Kali Phosphoricum (twice daily); Phosphoricum Acidum (twice daily for 3-5 days following chemotherapy); and Natrum Muriaticum (twice daily for 10 days following chemotherapy). Acupuncture was used between chemotherapy sessions to increase appetite and energy level. The patient had an ongoing practice of meditation and visualization which was continued throughout and after treatment, and she maintained a positive attitude. In terms of dietary changes, the patient cut out coffee consumption, increased her consumption of fruits, vegetables and green tea, and reduced her consumption of meat. Exercise consisted of daily walks.

However, the patient suffered from persistent side-effects common to Paclitaxel/Carboplatin chemotherapy, including: anaemia; neutropenia; thrombocytopenia; loss of appetite; tiredness; loss of energy; face

reddening as if sun burnt; weakness in knees; trouble walking; dizziness; trouble sleeping; numbness in arms, hands and feet; cold feet; noticeable bruising; aching legs; abdominal pain; nausea; and a candida infection in the mouth and a loss of taste. These side-effects resulted in the need for three blood transfusions before the six chemotherapy sessions were completed. Although the side-effects were severe it was the loss of her thick, long, beautiful hair that caused her the most anguish.

The patient maintained her alternative therapies, dietary change and walks throughout her treatment course. One week after starting her chemotherapy and alternative therapies there was a significant reduction in her abdominal swelling. By week four her CA-125 level had dropped to 4,593. Her CA-125 level was measured the day she received her third course of chemotherapy (week seven from onset of treatments) and it had dropped to 510. Her physician noted that she had never seen such a huge fall in CA-125 levels in all her career and was quite taken aback by the results thus far.

During the twelfth week of treatment she received a hysterectomy. The surgeon reported that most of the cancer had been removed except for "sugar grain-like" residual cancer. The post-operative pathology report noted a very good response to the therapy that she had been receiving. Unfortunately, the operation also left the patient suffering from constant abdominal pains.

Three weeks after the surgery the CA-125 level had fallen further to 52 and the doses for the fifth and sixth chemotherapies were consequently reduced by 20%. By week 19 of her treatment, the CA-125 had fallen to within normal limits. Chemotherapy was completed during week 22, and the CA-125 level was measured as 15 (within normal limits) the week following. At week 25 the CA-125 had fallen to 13. A CT scan was performed during week 28 and during the 29th week after treatment onset, the patient was told that she was cancer free. Her three month follow up confirmed this with a CA-125 level of 11.

This patient saw dramatic improvement in the reduction of abdominal swell-

ing a week after starting chemotherapy and alternative therapies. She also experienced unexpectedly dramatic reductions in CA-125 levels by week seven and continual further reductions in these levels until reaching normal limits during week 19. This is a very impressive response for stage 3 peritoneal cancer or ovarian cancer. Given the similarities between peritoneal carcinoma and ovarian cancer they are typically treated in the same way. If we look at the clinical trial literature for surgery plus Paclitaxel/Carboplatin chemotherapy we find quite a varied rate of complete response (defined as no sign of cancer pathology remaining). Vasey reports a 28% complete response rate for Paclitaxel/Carboplatin for the 296 patients studied (there were 538 patients were enrolled in this arm of the study¹⁹). In a smaller trial, Neijt reports a complete response rate of 40% in the relevant arm of his trial for the 67 patients that they used for this analysis - 100 patients were enrolled in this arm of the study.²⁰ In a further trial, du Bois reports a complete response rate of 31% for the 99 patients that they used for this analysis - 397 were enrolled in this arm of the study.²¹

Adverse effects are the primary reason for people failing to complete a clinical trial. Such patients are either removed from the study by attending physicians or they remove themselves. It can be argued that in calculations of complete response rate for an intervention one should use the total number of eligible people enrolled in each arm of the study otherwise these response rates are artificially inflated. If we do this the complete response rates in the Paclitaxel/Carboplatin studies described above fall to 15% (from 28%), 27% (from 40%) and 8% (from 31%). These are not impressive complete response rates, given that surgical debulking of the tumour was performed, but they provide a context for the physician's surprise at her rapid recovery.

The patient maintains her alternative treatment plan and lifestyle changes, although she has returned to coffee consumption. She benefits greatly from her daily practice of meditation and visualization and

is currently writing a book on her cancer experience along with producing a visualization CD for cancer patients. Her hair is growing back and she enjoys the unexpected benefit of looking younger with short hair. She believes that Salvestrols, and the other facets of her alternative treatment plan, played a key role in her return to good health.

Discussion

These cases provide further evidence for the role that nutrition can play in recovery from cancer. In particular they highlight the role that metabolism of dietary Salvestrols by the universal cancer marker CYP1B1 can play in bringing about a successful outcome to various cancer diagnoses. Cases one, two and three all represent situations where the patient utilized Salvestrols without any concurrent conventional treatment. These cases highlight how some individuals respond very quickly with a relatively low Salvestrol intake (case one: 1,400 points per day, all clear in one month; case two: 1,000 points per day, all clear in three months; case three: 2,000 points per day, all clear in three months). There is one further, important point to make and it relates to an example of Salvestrols perhaps fortifying the patient to withstand the rigours of chemotherapy and enabling a better chemotherapy result. This is case five, the peritoneal cancer patient, who utilized both conventional treatment and Salvestrols, whose physician expressed such surprise at the extent of her recovery and whose complete recovery was so obviously against the odds for this type of cancer (case 5: 6,000 points per day, all clear in less than seven months).

Compounds, be they synthetic drugs or naturally occurring substances, rarely have only one pharmacological action. Case four, benign prostatic hyperplasia, has been included to highlight the fact that Salvestrols may bring about health benefits beyond their role in combating cancer. BPH presents certain symptoms that are shared with those suffering from prostate cancer. Case four indicates that relief of these symptoms can be achieved through the use of Salves-

trols. Whether this is due to a known anti-inflammatory function of some Salvestrols, or whether there were indeed cancer cells present for this patient, or a combination of both, we cannot tell. Nevertheless, CYP1B1 could well have been involved because BPH cells, although neither a cancer nor a precursor to cancer, over-express CYP1B1 relative to normal prostate.²² Furthermore, in some men diagnosed with BPH their prostate also contains PIN cells,²³ which are a precursor to cancer and also over express CYP1B1.²² In light of this patient's success, Salvestrols could be tried for further situations involving BPH, especially when conventional treatment has failed to provide relief.

Conclusion

These cases provide hope to those physicians and patients that wish to pursue a nutritional approach to cancer management whether in isolation from conventional treatment or in concert with conventional treatment.

Statement of Informed Consent

Written consent was obtained from these patients for publication of this report. The editor provides his assurance that all identifying characteristics have been altered to protect patient anonymity, but, while doing so, care has been taken not to affect the technical aspects of this article.

Competing Interests

Dr. Brian Schaefer is a Director of Acquired Intelligence Inc, the Canadian and US distributor of Salvestrols; Professor Gerry Potter, Dr. Robbie Wood and Professor Dan Burke are shareholders of Salvestrol Natural Products, the UK developer of the Salvestrol technology.

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