CASE REPORT

To encourage other practitioners to consider submitting a case report for the E – News, we have restructured the format in line with recommendations from July 2014 and have left in the key guides – should you be interested just e mail info@nutri-linkltd.co. We will send you the word doc.

Case reports are profesional narratives that outline the diagnosis, treatment, and outcomes of the medical problems of one or more patients. Information from case reports can be shared for medical, scientific, or educational purposes. They provide a framework for early signals of effectiveness adverse events, and cost. Case reports and the systematically collected data from which they are written also provide feedback on clinical practice guidelines.

59 yo woman with dyslipidaemia, mild hypertension (HTN), fatigue, & history of neuroendocrine tumour

Abstract.
This case explores a nutritional focused approach to the resolution of fatigue, joint pain, dyslipidaemia (*A disorder of lipoprotein metabolism, including lipoprotein overproduction or deficiency. Dyslipidemias may be manifested by elevation of the total cholesterol, the "bad" low-density lipoprotein (LDL) cholesterol and the triglyceride concentrations, and a decrease in the "good" high-density lipoprotein (HDL) cholesterol concentration in the blood*), and hormonal management in a woman with early onset menopause (age 40) with a history of a pheochromocytoma (*a rare tumour of adrenal gland tissue. It results in the release of too much epinephrine and norepinephrine, hormones that control heart rate, metabolism, and blood pressure*).

H.G. is a 59-year-old woman who presented to clinic with the primary complaints of fatigue, hormone management, and dyslipidemia. Additional issues not listed as primary complaints were a poor sense of smell and taste, joint pains, and mild hypertension. Overall she just didn't feel "right" and didn't know why this was. She had been diagnosed with a double heterozygous MTHFR mutations (C677T and A1298C) by a previous provider, and put on Deplin (l-methylfolate) 7.5mg/day for this. She went through menopause at age 40, and has been on hormone therapies since this time. She had a pheochromocytoma and right adrenalectomy in 2008, and started having issues with blood pressure at this time. There is a significant family history of heart disease with her father dying at age 41 of a heart attack and her brother has had 6 stents. Everyone else on this side of her family has established heart disease, while on her mother's side there is significant alcoholism.

Fatigue can be associated with many things including anaemia, depression, infection, cancer, autoimmune disease, poor sleep, hypothyroidism, and adrenal insufficiency. Environmental factors can also play a role. Basic labs are important to assess, and may provide information about contributing factors. As H.G. experienced an improvement in her fatigue with the supplementation of B complex vitamins, nutritional insufficiency of any of these vitamins may have played a role. B complex vitamins are also supportive to adrenal function. As H.G. had a low level of cortisol prior to initiating therapies and which improved on subsequent testing, this also may have been a factor.

Many of H.G.'s symptoms were improved with nutritional interventions. Zinc improved her sense of smell after a very short time. Pain was improved with natural anti-inflammatories. Fatigue was improved with B vitamin supplementation, and energy levels supported with 'gentle' adaptogenic phytocompounds. Blood pressure is well managed with her current medication, and H.G. did not express interest in changing this due to her family

history of heart disease. She had no adverse effects with the blood pressure medication, and it was cost effective to continue this therapy rather than employing additional supplements.

The primary challenge with this case was the dyslipidaemia which continued to worsen during nutritional treatment, forcing a re-examination of the possible benefit that hormone replacement therapies may have had for this woman. Nutritional strategies for addressing lipids which are effective for some people were of no benefit for the reduction of cholesterol in this otherwise healthy and active woman.

Key Words.
Pheochromocytoma, hormone replacement therapy, dyslipidaemia, cholesterol, fatigue, heart disease, anosmia.

Introduction.
A 59-year-old woman, H.G., presented to clinic with the primary complaints of fatigue, hormone management, and dyslipidaemia. Additional issues not listed as primary complaints were a poor sense of smell and taste, joint pains, double heterozygous MTHFR mutations (C677T and A1298C), mild hypertension, a personal history of a pheochromocytoma and adrenalectomy, and a significant family history of heart disease. Her father died at age 41 of a heart attack, her brother has had 6 stents installed and experiences atrial fibrillation, and everyone else on this side of the family has established heart disease. On her mother's side there is significant alcoholism and health issues associated with this. H.G went through menopause at age 40, and has been on hormone therapies since this time. She is a very positive and optimistic person, and has never experienced problems with her mood. She has had mild hypertension since she was diagnosed with the pheochromocytoma, which has been managed with 1/4 tab of the diuretic Maxide 75-50 (Hydrochlorothiazide / Triamterene) and 1.25 mg of Bystolic (beta blocker).

Presenting Concerns.
Historically H.G. was a police officer and worked in a toxic building environment, although she is now retired and spends her time farming with her husband. Her weight has increased from 134 lbs to 138 lbs (9 st 8lbs to 9 st 12 lbs, 59.55 kg to 61.33 kg) in the past 6 months. Her height is 5'7" (170cm). She eats a whole foods diet, organic and local when possible, with no significant food avoidance and drinks a glass of red wine 3 times a week. She is active, and hikes 4-5 miles regularly or rides horses several times a week. Up until her current issue of fatigue she states that her health has been good, despite the issues which have been previously stated. She was put on Deplin 7.5mg/day when she was diagnosed with the double heterozygous MTHFR mutations (C677T and A1298C). She is very optimistic and positive and does not experience symptoms of anxiety or depression.

Pheochromocytoma. Other than mild hypertension, the only symptom which H.G. experienced of the pheochromocytoma was a mild pinching pain in her affected side. The tumour and right adrenal gland which it was found in were removed in 2008. There had been no monitoring of catecholamines since the adrenalectomy. H.G.'s blood pressure is well managed with her current medication, and she did not express interest in changing this due to her family history of heart disease.

Hormone management. She has been on Medhydroxyprogesterone 2.5mg and Oestradiol 1mg since menopause at age 40. She is interested in discontinuing the hormone replacement therapy (HRT) if possible. When she did not take her hormones for a brief time in the past she subsequently experienced insomnia, although she has never had hot flashes. Her libido is poor and also experiences fatigue.

Dyslipidaemia. Cholesterol has increased from 2015. LDL was 139 (UK – 3.59 mmol/L, with ref range <3.00) when measured in 2015, and 155 (UK – 4.00) in early 2016. HDL decreased from 105 (UK – 2.71, with ref range

1.03 – 2.32) to 91 (UK – 2.35), while triglycerides were normal at 66 (UK – 0.74 mmol /L, with ref range 0.34 – 1.7). Thyroid labs (TSH and free T4) were normal at both times. As she has a family history very significant for heart disease (father died at 41 of a heart attack and brother has 6 stents) this is of concern.

Fatigue. H.G has experienced a dramatic increase in fatigue in the last year. She is not having a desire to jump out of bed and do things like she used to and also feels like her strength and body has 'gone to pot'. This is not normal for her. She has only had fatigue briefly in the past after her adrenalectomy. She has not experienced joint changes but some soreness in them. Historically she has had mumps, chicken pox, Mono/EBV. She also had an episode of transverse myelitis (*a neurological disorder caused by inflammation across both sides of one level, or segment, of the spinal cord*) which resolved when she left her job, which was in a toxic environment. Her sleep has been fine and she currently gets 9 hours of sleep a night.

Clinical Findings.
There were no abnormal findings with physical examination, and laboratory studies on 6/6/2016 found that her cholesterol had risen since the beginning of the year, with her LDL now 164 (UK – 4.24 mmol/L) and total cholesterol 271 (UK – 7.00). The CBC, CMP and thyroid labs were WNL, with her TSH 1.29 (0.40-4.50 mIU/L), free T4 0.88 (0.7-1.8 ng/dL, UK ref range of 9-23 pmol/L), and free T3 3.09 (2.8-6.5 pmol/L). Thyroid antibodies negative. AM cortisol was 8.5. Hormones were as they would be expected with HRT - Oestradiol high at 50 (normal post-menopausal levels <20 – 40), progesterone normal, DHEA-s and testosterone WNL. ANA (anti nuclear antibody) screen was positive with a titre of 1:160 but no specific antibody was found with the reflex panel. An elevated plasma normetanephrine of 1.03 nmol/L (range 0 – 0.89) was found, however the metanephrine levels were within normal limits. Her 24-hour metanephrines levels were normal, with a slightly high norepinephrine: creatinine ratio.

Genetic issues are a double heterozygous MTHFR mutations (C677T and A1298C). However, H.G. is a very positive and optimistic person, and has never experienced problems with her mood. On her mother's side of the family there is significant alcoholism. Her mother was an alcoholic and died at 56 years of age due to this. Her father died at 41 of a heart attack. Her brother has 6 stents.

Timeline.
1997
H.G. passed through menopause at age 40 and was started on Medhydroxyprogesterone 2.5mg and Oestradiol 1mg a day.

2008
H.G. was diagnosed with pheochromocytoma and had an adrenalectomy.

2012
H.G. retired from working with the police force. Experienced transverse myelitis.

2015, late
New symptoms of fatigue have started to become significant.

Cholesterol labs:
1/2015: LDL 139 (3.59, ref range <3.00 mmol/L), HDL 105 (2.71, ref range 0.1.03 – 2.32 mmol/L), triglycerides 66 (0.74, ref range 0.34 – 1.7 mmol/L)
1/2016: LDL 155 (4.00), HDL 91 (2.35), triglycerides 66 (0.74)
6/30/16: LDL 164 (4.24), HDL 94 (2.43), triglycerides 67 (0.76), total cholesterol 271 (15.88)

9/14/16: LDL 185 (10.84), HDL 83 (4.86), triglycerides 60 (0.68), total cholesterol 280 (16.41)

Cortisol, AM:
6/30/16: 8.5 mcg/dL (5-23 micrograms per deciliter (mcg/dL) or 138-635 nmol/L)
9/14/16: 15.3 mcg/dL

Diagnostic Focus and Assessment.
Appropriate labs to assess for possible contributors to primary symptom of fatigue as well as hormone management were performed. The testing ruled out anaemia, hypothyroidism, infection, and autoimmune disease. As fatigue improved with initial supplement therapy further assessment of contribution of possible latent viral infection was not investigated further. However, it poses an issue which still may need to be addressed, particularly given the history of an episode of transverse myelitis. Additionally, the toxic environment which H.G. experienced at her workplace also may have been a contributor to this, as well as her fatigue. Home-life in childhood was likely difficult due to her father dying when she was young and her mother's alcoholism, however H.G. outwardly does not appear affected. This doesn't rule out internalisation of her emotions which may impact her current physical symptoms.

Therapeutic Focus and Assessment.
6/6/16
H.G. was initially seen in my office. As H.G. enjoys food-based treatment strategies, using dietary interventions was determined to be an appropriate initial intervention, particularly for the management of her cholesterol. H.G. was not experiencing adverse effects with the blood pressure medication, and it was cost effective to continue this therapy rather than employing additional supplements.

Caution was exercised in selecting supplements to support the reduction of her fatigue due as the cause was not known. However, many individuals experience an improvement in fatigue with B complex vitamins. As H.G. was already taking Deplin (l-methylfolate) (a costly therapy) to address her MTHFR heterozygous mutations, using a B complex which provided methylated folate was also a lower cost treatment that addressed this issue. With the family history of cardiovascular disease, it is important to include folate, B6, and B12 in combination as they support the reduction of homocysteine.

Magnesium supports the reduction of blood pressure, and breakdown of norepinephrine. Zinc deficiency has been shown to be associated with a poor sense of taste and smell. Schizandra chinensis, Chinese Five-Flavour berry, is a balancing adaptogenic phytobotanical high in antioxidants that also supports immune function and is supportive to the liver. Schisandra aqueous extract also has been shown to improve lipids and blood pressures in animal studies. H.G. was excited to begin therapies and do labs to rule out possible contributors to her symptoms.

First Supplement Programme	
Flax seed	**4 Tbsp freshly ground**
Oatmeal	**1c daily as breakfast**
B complex with Metafolin (Douglas Labs)	**2 with breakfast**
Magnesium	**200 – 500mg/day**
Zinc	**50mg/day with meal**
Schisandra berry	**Use for tea, Kombucha**

6/15/16

H.G. reports significant improvement in energy, as well as her sense of smell. She was very excited to have these improvements in less than two weeks when she was originally seen. Labs done have shown that her LDL is now 164 (9.61), HDL 94 (5.51), and total cholesterol 271 (15.88). Her morning cortisol was found to be low at 8.5 and was considered to be a possible contribution to her fatigue. However, as her normetanephrine was high at 1.03 nmol/L (range 0 – 0.89) the possibility of a new pheochromocytoma had not been ruled out, and stimulating adrenal herbs or glandulars was considered a contraindication.

She would like to discontinue her hormone replacement therapies, and was provided the guidance that it would be appropriate to do so given her family history of cardiovascular disease. Maca, a balancing adaptogen with oestrogenic effects that also has been shown to improve libido was selected as an appropriate alternative particularly as she would be discontinuing her hormone replacement therapies. An additional plant bud therapy combination that supports metabolism and reduction of cholesterol was also included. Plant therapies in bud form can have a more regenerative effect on the body as they contain growth stimulating factors not found in the mature plant.

Second Supplement Programme	
Flax seed	**4 Tbsp freshly ground**
Oatmeal	**1c daily as breakfast**
B complex with Metafolin (Douglas Labs)	**2 with breakfast**
Magnesium	**200 – 500mg/day**
Zinc Picolinate	**50mg/day with meal**
Schisandra berry	**Use for tea, Kombucha**
Maca powder	**½ tsp twice a day**
Oestriol suppositories	**As needed if vaginal dryness increases with HRT d/c**
Met-gen (Seroyal)	**7 drops twice a day**
Oestradiol	**1/2 tablet (0.5mg) daily x 2 weeks, then 1/2 tablet every other day x 2 weeks.**

7/14/16
H.G. continues to feel good. She has not noticed any significant symptoms with decreasing her oestrogen therapies. She mentions that she has stopped taking her allergy medication, and has not experienced any symptoms despite the very high levels of pollens this year. The area of Eugene, Oregon, in which she lives is known as one of the worst areas for allergies in the Northwest. However, her sleep has worsened somewhat. She notes that she would like something to support the reduction of her joint pains, as she feels that this has been the primary contributor to her sleep difficulties. The possibility of a pheochromocytoma has been ruled out with a 24-hour urine metanephrine and catecholamine fractionation. Fish oil and a combination anti-inflammatory product were selected to support the reduction of her pain. Fish oil also has supports cardiovascular health and healthy cholesterol balance.

Third Supplement Programme	
Flax seed	**4 Tbsp freshly ground**
Oatmeal	**1c daily as breakfast**
B complex with Metafolin (Douglas Labs)	**2 with breakfast**
Magnesium	**200 – 500mg/day**
Zinc Picolinate	**Decrease to 25mg/day with meal**
Maca powder	**½ tsp twice a day**
Met-gen (Seroyal)	**7 drops twice a day**

Fish oil	**1000 – 2000mg EPA/DHA a day**
Inflamed (ARG)	**2 capsules 2x/day decreasing to 1x/day after 4 days**
Oestadiol	**Discontinue**

8/1/16
H.G. sends an enthusiastic email about how much her pain has been improved using the InflaMed.

8/25/16
H.G. continues to feel good, and have a high level of energy. Her pain has been dramatically improved with the new therapies. She was able to move 10 tons of hay with her husband and felt fine the next day. Her sleep has been fine. She elects to try a sample of a supplement that supports digestive health and immune function, and also is an adaptogen, and finds it pleasing and decides to take it on an ongoing basis. A cholesterol lab order was put with instructions to do so in mid-September, as well as a follow-up test to assess her morning cortisol. As initially with the positive ANA screen nothing was found with the reflex panel, an alternate panel to screen for autoimmune disease was selected, and her C-reactive protein and erythrocyte sedimentation rate (ESR) also were ordered. Her homocysteine, methylmalonic acid, B12, and folate levels were also tested.

Fourth Supplement Programme	
Flax seed	**4 Tbsp freshly ground**
Oatmeal	**1c daily as breakfast**
B complex with Metafolin (Douglas Labs)	**2 with breakfast**
Magnesium	**200 – 500mg/day**
Zinc Picolinate	**25mg/day with meal**
Maca powder	**½ tsp twice a day**
Met-gen (Seroyal)	**7 drops twice a day – finish and do not refill**
Fish oil	**1000 – 2000mg EPA/DHA a day**
InflaMed (ARG)	**2 capsules 2x/day decreasing to 1x/day after 4 days**
Medhydroxyprogesterone 2.5mg	**Decrease to every other day for the next month.**
Amla plex (Ayush)	**1 tsp/day**

9/14/16
Cholesterol labs have been performed, and they have continued to skew in a worsening direction with the LDL/HDL balance despite gentle intervention with flax seed and oatmeal. Her LDL is now 185 (10.84), HDL 83 (4.86), and total cholesterol 280 (16.41). Other labs were as follow: Folate and B12 WNL, homocysteine (Hcys) 6.9 umol/L (desirable level up to 10 umol/L), hs-CRP 0.16 mg/L (ref range <0.50 mg/L), ESR 10mm/hr (ref range 1 – 20 mm/hr), AM cortisol 15.3 mcg/dL, ANA 1:40 with reflex negative. Because there have not been improvements in cholesterol, and in fact a worsening, H.G. is recommended by email to start red yeast rice (RYR) with CoQ10 at a dosage of 1200mg/100mg twice a day. As a natural statin, this therapy will most likely be effective in bringing her cholesterol back to better balance. H.G. reports some discouragement over the fact that her cholesterol has not improved.

Fifth Supplement Programme	
Flax seed	**4 Tbsp freshly ground – may discontinue**
Oatmeal	**1c daily as breakfast**
B complex with Metafolin (Douglas Labs)	**2 with breakfast**
Magnesium	**200 – 500mg/day**
Zinc Picolinate	**25mg/day with meal**

Maca powder	**½ tsp twice a day**
Met-gen (Seroyal)	**7 drops twice a day – finish and do not refill**
Fish oil	**1000 – 2000mg EPA/DHA a day**
InflaMed (ARG)	**2 capsules 2x/day decreasing to 1x/day after 4 days**
Medhydroxyprogesterone 2.5mg	**Decrease to every other day for the next month.**
Amla plex (Ayush)	**1 tsp/day**
Red Yeast Rice with CoQ10 (Jarrow)	**2 capsules (1200mg/100mg) twice a day.**

9/28/16
H.G. reports not sleeping well. She also expresses concerns that the discontinuation of her hormone replacement therapies has caused her cholesterol to rise and is interested in possibly resuming them. She does not like taking the RYR and feels that is has been causing her to have joint pains. H.G. is encouraged to set up a follow up appointment where further discussion of her new symptom of poor sleep and the possibility of resuming hormone therapies can be discussed. Other supplements or treatments for the purpose of improving sleep and addressing her cholesterol issues will also be considered. It is noteworthy to consider the possible impact of her slightly high norepinephrine levels found with the 24h urine collection, as this may contribute to poor sleep and elevated blood pressure. With the discontinuation of her hormone therapies, her progesterone levels have inevitably dropped, and may contribute to her poor sleep.

10/10/16
In the visit to be held with H.G. on this date consultation will include discussion of other possible supplement protocols to address cholesterol including niacin and increased dosing of schisandra berry, as well as other issues which may be contributing to her poor sleep. If H.G. desires to resume hormonal replacement therapy, slightly lower doses than what she had been taking will initially be recommended as well as the use of micronized progesterone rather than medhydroxyprogesterone, possibly in combination with supplementation.

Supplement Information

InflaMed (ARG) – http://tinyurl.com/hp3p6c3
InflaMed combines a synergistic blend of phytonutrients, nutrients, and proteolytic enzymes which provide nutritional support for connective tissue and joint tissue.

Magnesium - Mg-Zyme (BRC)
Magnesium is important for musculoskeletal health, proper cardiac and immune function, and the maintenance of healthy blood sugar levels. Dietary intakes below recommended levels are common.

Zinc Picolinate (ARG)
Zinc is a trace mineral that is involved in more than 30 enzyme reactions in the body, and is an essential mineral cofactor for one kind of superoxide dismutase (SOD), a major class of antioxidant enzymes.

Red Yeast Rice (Jarrow)
Red Yeast Rice – Rice that has been fermented by the yeast Monascus purpureus has been used in Asia for centuries as a food preservative, food colourant and flavouring, as well as in traditional herbal formulas. It is part of the diet in China, Japan, and Asian communities in the United States. Coenzyme Q10 complements Red Yeast Rice in supporting healthy cardiovascular function.

Met-gen (Seroyal)
Almond, olive, and rosemary from buds or young shoots. Almond supports thyroid, rosemary supports liver, and olive is cholesterol lowering and protects vessels. Phytoembryotherapy is a branch of phytotherapy that specifically incorporates plant embryological tissues (buds, young shoots, etc.) containing plant meristem, undifferentiated, fast dividing cells which contain the plants genetic blueprint and material. These embryonic tissues are rich in beneficial phyto-chemicals including: growth factors and plant hormones, enzymes, nucleic acids, oligoelements, and phytonutrients such as polyphenols and flavonoids.

B complex with Metafolin and Intrinsic Factor (Douglas Labs)
B-Complex is unique, including Metafolin®, Methylcobalamin Vitamin B12, and Intrinsic Factor in its formulation. Metafolin® contains only the S isomer of 5-MTHF and has been shown to be the only form of folate to be able to cross the blood-brain barrier. Studies indicate that methylcobalamin, a coenzyme form of B12, may be better used and better retained in the body. Intrinsic factor is a protein produced by cells in the stomach lining and is needed for the intestines to absorb vitamin B12 efficiently.

Amla Plex (Ayush)
AMLA PLEX™ is made from 35 select ingredients, including spices and herbal extracts. It is based on a traditional chavanprash recipe from Ayurvedic tradition. This ancient recipe is considered one of the world's finest immune enhancers, and is a natural source of vitamin C, bioflavonoids, and tannins. Its primary ingredient, the amla fruit Emblica officinalis, has traditionally been used as a rejuvenative and an adaptogen. The fruit has documented antioxidant properties.

Maca Powder (Wise Women Herbs)
Supports a normal healthy sex drive, normal vitality and a healthy response to temporary stress. Promotes a healthy mind, body and spirit.

Schisandra chinesis berry
Chinese folklore says that Schisandra can "calm the heart and quiet the spirit", and it has a long history in Traditional Chinese Medicine. Its Chinese name is wu-wei-zi, which means five taste fruit. Schisandra has a usually sour, sweet, bitter, warm, and salty taste, hence the name "five taste". Russian hunters have consumed it for centuries as a tea to help with fatigue, and it has been shown to affect central nervous, sympathetic, endocrine, immune, respiratory, cardiovascular, and gastrointestinal systems.[i] Schisandra aqueous extract has been shown to improve lipids and blood pressures in animal studies.[ii]

Discussion.

Strengths and limitations of this case report including case management
Strengths in the management of this case were engaging this patient in nutritionally focused interventions. As she enjoys doing things with food and trying new tastes, she was eager to try food based therapies. She also was a strength on her own right, and very compliant with therapies.

Limitations of this case were the lack of further assessment of possible contributors to her symptoms of fatigue and historic episode of transverse myelitis. As this was not a current issue and fatigue improved with basic supplementation, it was not something which was further discussed. Testing for autoimmune disease has not revealed unknown issues of autoimmunity, and with the healthy lifestyle, minimal stressors, and supportive supplements it may be that this will not surface again. Further possible causes of her historic pheochromocytoma were not assessed, but also may be associated with environmental exposures.

The literature relevant to this case report

Catecholamine-secreting tumors are rare neoplasms, with an annual incidence of 0.8 per 100,000 person years.[iii] However, they are often found at autopsy so actual incidence may be higher than this. Surgical removal of a pheochromocytoma does not always lead to long-term cure of pheochromocytoma or hypertension, even in patients with a benign tumour. In one study, pheochromocytoma was found to recur in 16 percent, of this 50% were malignant.[iv] For this reason long-term monitoring is indicated in all patients, even those apparently cured. Annual biochemical screening is suggested. Slight elevation of plasma normetanephrine and metanephrine is common with essential hypertension.

In women with early menopause (<40 years of age), hormone therapy is recommended until the average age of menopause, approximately age 50 to 51 years. Beyond this, the potential risks and benefits should be assessed. An increase in the rate of coronary events has been observed with combined conjugated equine oestrogen-medroxyprogesterone acetate therapy. As the family history of H.G. is significant for cardiovascular disease, therapy was recommended to be discontinued at this time.

As was seen here, oestrogen has an effect of decreasing LDL cholesterol and increasing HDL cholesterol. Possible mechanisms include induction of LDL receptors and the destruction of hepatic lipase which degrades HDL cholesterol.[v] In post-menopausal women with elevated cholesterol who were taking 1.25 mg conjugated oestrogen with medroxyprogesterone acetate 5 mg/day total cholesterol was found to decrease 14%, with LDL decreasing 24% and HDL increasing 7%.[vi] Slightly greater changes are seen with 10 mg/day of statin therapy. Progestins are known to attenuate some of the beneficial lipid effects of oestrogen particularly on HDL, although oral micronized progesterone seems to have little or no adverse effect.[vii] Standard regimes of hormone replacement therapy are conjugated oestrogen (0.625 mg/day) alone or with cyclic or continuous medroxyprogesterone (2.5 – 10mg/day) or cyclic micronized progesterone (200 mg/day for 12 days). That said, statins are viewed as the first-line therapy for reducing cholesterol in post-menopausal women due to the possible cardiovascular risks with hormone replacement therapy.

Some natural alternatives that have evidence for improving cholesterol include plant sterols, red yeast rice, and niacin. Ground flax seed is a source of beta-sitosterols.[viii] Taking beta-sitosterol orally has been shown to significantly reduce total and LDL cholesterol levels, but has little or no effect on HDL cholesterol levels.[ix] Red yeast rice (RYR) contains monacolin K which is identical to lovastatin. 1-5 grams daily RYR has been observed to significantly lower total cholesterol, LDL cholesterol, and triglycerides, as well as increase HDL cholesterol. Taken at a dose of 2400 mg twice daily for 12 weeks, it is comparable to taking pravastatin 20 mg twice daily for lowering LDL cholesterol.[x] Niacin is considered a first-line therapy for increasing HDL, but also reduces LDL cholesterol by about 5% to 25%, compared to 18% to 55% with statins.[xi] The effects of niacin are dose-dependent, and women may respond better to therapy with niacin than men.[xii] Niacin's greatest effects on LDL occur at 2000-3000 mg/day.

The rationale for your conclusions

The conclusion that the hormone replacement therapy was possibly supporting H.G.'s lipid levels was come to because this was the one thing eliminated. Interventions which positively impact cholesterol for many people were not helpful in this case. H.G. was very active with exercise, eats a healthy diet, and was very compliant with all recommended therapies, yet her cholesterol continued to increase particularly after stopping the hormone replacement therapies.

The main findings of this case report: What are the take-away messages?

Although hormone replacement therapy may not be indicated for the management of menopausal symptoms, it may be offering benefits to lipid profiles.

Patient Perspective. The patient should share his or her experience or perspective of the care in a narrative that accompanies the case report whenever appropriate.

H.G. has enjoyed working with natural therapies, and overall feels very positive about the changes that she has experienced with supplementation. However, the cost of maintaining interventions is something which she would like to reduce, and for this reason extensive protocols which have not been well studied have not been used in this case.

Informed Consent.

The patient is not aware her case history is being used, and all identifiable data has been removed.

Case Report Submission Requirements for Authors

1. Competing interests.

None Known

2. Ethics Approval.

This case was not presented to an ethics committee.

3. De-Identification.

All patient data has been re-identified

4. Author.

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