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Example **DISCUSSION** of **Pathology Results** - for client Jane Starbright

- Discussion on **pathology report** with nutritionally related indications

Please see example of pathology report first at www.healthysecondopinion.com.au

Clients Haemoglobin and mean cell Haemoglobin are both low, indicating possible **B12 and Folate and Iron, Zn, B6 & or protein deficiency**. When we look at the iron studies, iron stores have been historically and consistently low with serum iron (7), ferritin (36) transferrin (11%) and TIBC (62). **Taken together these values along with the lowish Hb point to obvious iron deficiency**. Transferrin saturation reflects the % of transferrin and other mobile iron binding proteins saturated with iron and values less than 15% is indicative **of iron deficiency anemia**. Ferritin is the major iron storage protein and levels thus reflect iron stores in the body and levels below 10ug/l are diagnostic of iron deficiency anemia. Ferritin can be decreased also by severe protein depletion via malnutrition. Pregnancy decreases ferritin levels. However false positives can be seen in chronic disease states. As ferritin is an "acute phase protein" it may also be elevated in conditions that DON'T reflect iron stores such as **infections and acute inflammatory diseases** and metastatic cancer and lymphoma, collagen diseases, alcoholism and chronic liver diseases. Elevations of ferritin are seen around 1-6 days after onset of acute illness and as such may MASK iron deficiency. Total iron binding capacity (TIBC) is an indirect yet accurate measurement of transferrin as transferrin represents the largest quantity of iron binding proteins (excluding ferritin). **In 70% of patients with iron deficiency TIBC is increased**. As transferrin is a "negative acute phase protein", levels can be reduced in acute inflammatory reactions and in some chronic illnesses and hypoproteinemia. Pregnancy and estrogen therapy can increase TIBC while iron intake does NOT usually affect TIBC levels.

While previous white blood cell counts were high, the latest results show normalised values albeit low eosinophils and basophils. These tests need to be done again as historically they are incomplete and with the clients medication of corticosteroids values will be thus effected.

In spite of this should consider [low Zinc, VitC, B6 and protein along with B12, B3 and folate](#).

Also the low CRP and high ESR indicate [low vit E and an EFA imbalance](#). (again)

Biochemistry reveals signs of impaired protein synthesis possibly linked to [lack of B6 and Zinc](#), low hormone status or cytokine-induced metabolic derangement (very likely) while PMI, as mentioned previously, shows impaired protein synthesis and excessive protein tissue breakdown ie. Catabolism.

Liver function tests reveal possible [Zinc and B6 insufficiency](#) while consistently high LDH may indicate some liver stress or damage although LDH is found in many body tissues including heart, liver, red blood cells, kidneys, skeletal muscle, brain and lungs. There are actually five separate isozymes that make up the total LDH but this test only measures the total LDH.

Hence the high values seen here could also reflect lung cell damage.

Blood lipids show raised cholesterol and LDL and HDL levels and together indicate a lower risk of heart disease than if only LDL was high. However homocysteine levels are elevated and elevated level are associated with increased Cardiovascular disease risk especially if blood lipids are also increased and while triglycerides are low LDH is high. Tricky but in the light of family genetics best to be cautious. Note that LDL can be high in Familial LDL lipoproteinemia and Familial hypercholesterolemia (FH) Type IIa. The most common genetic defects in FH are LDLR mutations (prevalence 1 in 500, depending on the population), ApoB mutations (prevalence 1 in 1000), PCSK9 mutations (less than 1 in 2500) and LDLRAP1.

TEST FOR THESE if suspect Familial hypercholesterolemia. Also can be raised in chronic liver disease, hypothyroidism, alcohol consumption, Cushing's syndrome. In any case the high homocysteine points to increased need for [folic acid, Vit B12, Vit B6 and Vit C](#). Also high LDH could indicate an increased need for cardiovascular [anti oxidants like resveratrol and lycopene and Coenzyme Q10 and Vit E and Vit C and lipoic acid](#).

Indications of obvious [vit D deficiency](#) prevails with possible [calcium lack](#) also indicated and not surprising since the corticosteroid use promotes osteoporosis.

Low Total Antibody levels could indicate [low protein status](#) and protein losing enteropathies but low Ig levels may also be present as drug immunosuppression is in affect in this client.

Thus nutrients found to be low or needed from these blood tests are

[EFA's, Protein, Vit C, Vit E , folic acid, Vit B12, Vit B3, Vit B6, Vit D and the minerals calcium, iron, zinc and Anti-oxidants like resveratrol and lycopene and Coenzyme Q10, lipoic acid and other essential phyto-nutrients could be increased.](#)

Additional tests to order

As test were done at the start of the year best to retest some previous tests. Additional tests are required to get the full picture of this clients metabolic and cellular biochemical status .

These include 3hrs GTT with concurrent measurement on glucose and insulin and 24 hr urinary iodine pathology test, full iron studies, full thyroid functions tests, Vit D, Calcium, blood lipids and hormone levels including progesterone, testosterone, DHEA, oestrogen and cortisol

along with auxillary tests including liver detoxification profile and urinary metabolite studies to asses mitochondrial function and other pathways. Also if client is unresponsive to digestive and gut treatments then order Bacterial and Viral DNA stool tests.(From Metametrix, For testing Services visit www.metametrix.com, For enquiries and ordering contact: Diagnostic Insight Ph: 02 9966 9990)

Also consider more detailed analysis of sputum to check white blood cell sub populations as this can assist in the detirmination of the actual need for the corticosteroids as some forms of asthma (if the client in fact has asthma) are unresponsive to these medications - see following paper for example -

***Endotyping Asthma: new insights into key pathogenic mechanisms in a complex and heterogeneous disease**, Gary P Anderson. *The Lancet*, Vol 372, 2008.*

Also important to order [allergix test](#) (also Metametrix) of IgG reactivity to 90 foods. Also systematically work through other [IgE triggering allengens](#) (RAST IgE tests) like varoius pollens, grasses, trees and weeds and suspect foods.

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It is a sample of the work carried out on a real client during a full Nutrition Medicine Health Assessment and treatment. It is designed to highlight the attention to detail and individualised care given to each client during an assessment. It is not intended to help in any form of self diagnoses or self treatment.

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