



Table of Contents:

An Ounce of Prevention	1
A Review of The Literature	2
Worth Repeating... ..	4
Coloured Email Reports	4

*Le bulletin Anamol est disponible en anglais et en français.
Si la copie que vous recevez n'est pas dans la langue de votre choix, veuillez s.v.p. nous en aviser.*

I dedicate this newsletter to professionals who are interested to widen their scope of connection between Chemistry and Metabolism.

Dr. George M. Tamari

An Ounce of Prevention...

Reflections on a "Healthy" Health Delivery System

Most Canadians are concerned about our Health Delivery System. The suggestions for eliminating hardship that the public is exposed to when seeking medical help are mainly aimed to provide more money. Basically, the problem isn't the budget available but the philosophy behind the Health Service!

A different approach should apply the already existing scientific knowledge that is best expressed in definition of Dr. Linus Pauling's "Orthomolecular" Medicine. It is essentially, the prevention and treatment of disease by administering nutritional supplements in optimal amounts, to be assessed taking into account the patient's state of health, external or environmental factors and quality of diet. The aim of orthomolecular medicine is not merely to eliminate disease, but to aim for 'optimum health'.

Scientists are well aware of the role different minerals and vitamins play in health and disease prevention. Experiments on gineapigs have

produced a typical diabetic curve when a glucose tolerance test was performed, while they were kept for a short time (3 weeks) on normal chow deficient only in Ascorbic acid or in Manganese. Another mineral - Chromium - has an insulin-sparing effect and the trace element Vanadium is mimicking the same activity, though its mode of action is not yet understood.

Deficiency in Magnesium will impair the production of energy; it can cause elevated blood pressure and interfere with normal function of the heart.

Zinc has a stabilizing effect of Insulin in the pancreas. In the presence of deficiency in Ascorbic acid, Manganese, Vanadium and Zinc, we can expect to face an impaired carbohydrate metabolism, a prediabetic condition that can be rehabilitated by providing the nutrients that the body is deficient of and are essential.

Continued on pg. 2

An Ounce of Prevention...

Cont'd

Exposure to our toxic environment can be aggravated by deficiencies in nutritional minerals. For instance, a study on children exposed to environment containing Lead absorbed more of this toxic element when they were deficient in Calcium. In other words, by using the antagonism that exists among the minerals, there is a possibility to minimize the effect of exposure to toxic environment by maintaining a well-balanced mineral status.

These are only a few examples indicating the need for adopting a new approach in maintaining and preserving a well functioning body.

The present Health Delivery system is based on treating sick people. It would be much more effective introducing compulsory program on nutrition at high-school level, and providing a service delivered by health professionals. Its aim should be to educate the public in ways to take care of themselves.

Healthy eating habits' teaching should start from kindergarten on. This effort should include the provision of a healthier environment; including the ratification of the Kyoto protocol. Food supplement should be tax-deductible, in similar manner that is applied to drugs. They are less expensive and without side-effects!

All the above suggestions covers the notion included in the term "Prevention", not limiting this expression to the avoidance of smoking, drinking alcoholic beverages and physical exercise. These changes could reduce not only the ever-increasing expenses in health care, but may contribute to a healthier quality of life for the general public.

Literature Review

Maternal and neonatal scalp hair concentrations of zinc, copper, cadmium and lead; relationship to some lifestyle factors.

Postpartum scalp hair samples from 82 term-pregnancy mother/neonate pairs were analyzed for their concentrations of zinc (Zn), copper (Cu), cadmium (Cd) and lead (Pb), using inductively coupled plasma-mass spectrometry. Maternal and neonatal Zn concentrations had geometric means of 122.5 mcg/g and 146.9 mcg respectively. Corresponding Cu values were 18.4 mcg/g and 6.7 mcg. Those of Cd were 0.49 mcg in the mothers and 0.57 mcg in the neonates. For Pb, they were 7.95 mcg and 4.56 mcg. Cigarette smoking, despite its relative low prevalence was associated with lower Zn and higher Cd and Pb concentrations and in lower Zn/Pb molar concentration ratios. Smoking also altered interelemental relationships, particularly those between Cd and Pb. Smoking frequency appeared to show negative dose-response effects on maternal and neonatal Zn concentrations. Zn/Pb molar concentration ratios, birth weight. Mothers with a history of oral contraceptive (OC) usage had significantly higher Cu concentrations and lower Zn molar concentration ratios than non users, with the highest Cu concentrations and lowest Zn/Cu values being associated with third-generation OCs. No similar effects were elicited in the respective neonatal Cu concentrations. Neither alcohol consumption nor prenatal supplementation with iron and/or folic acid had discernible effects on the maternal or neonatal elemental concentrations. The data from this study suggest that in a given population of term-pregnancy mothers and neonates, significant interindividual variations in hair trace element concentrations can occur, irrespective of commonality of general environment, and that lifestyle factors, including cigarette smoking and

OC usage history, can be significant contributory factors to such variations. The data are discussed in relation to the effects of smoking-associated exposure to Cd and Pb exposure to Zn availability for placental transfer, as well as on the quantitative maternal Zn supply levels to the fetus resulting from the known tendency of smokers to have lower dietary intakes of Zn.

IB Razagui, I Ghribi. *Biol Trace Elem Res* 2005;106:1-28

Essential microelements and gallstones in children

This study presents the particular features of the essential microelements content in the hair, blood, bile and gallstones in infants with cholelithiasis. It was shown that this disease is accompanied by a lack of microelements, which appears as a lack of selenium, imbalance of zinc and accumulation of iron and copper in biological objects. In conjunction with other factors (vegetative dysfunction, comorbidities of gastrointestinal tract and maldevelopment of the bile-excreting tract), the lack of microelements can promote the formation of gallstones in infants. It is possible to obtain complete information on particular features of microelements changes with the help of simultaneous studies of tissues of the hair, blood, bile and gallstones.

AM Zaprudnov, ON Tsar'kova, LA Kharitonova, AV Skal'ny
Eksp Klin Gastroenterol 2002;5: 63-66..

Toxic trace elements in the hair of children with autism.

Excess or deficiency of natural trace elements has been implicated in the etiology of autism. This study explores whether concentration levels of toxic metals in the hair of children with autism significantly differ from those of age- and sex-matched healthy controls. In-hair concentration levels of antimony, uranium, arsenic, beryllium, mercury, cadmium, lead and aluminum from 40

boys with autism had significantly ($p < 0.001$) higher I-hair concentration levels of lead, mercury and uranium. There was no significant difference between the two groups in the other five toxic elements. The ratio between nutritional elements and toxic metals among children with autism was within the normal range. The possible sources of the toxic metals are discussed. Such testing is informative but at present the practical implications in term of diagnosis and clinical management are limited.

A Fido, S Al-Saad. *Autism*. 2005;9:290-298

Scalp Hair Characteristic in the Newborn Infant

Scalp hair growth and patterning are closely associated with the development of the central nervous system. A number of genetic, metabolic, and neurological disorders are associated with recognizable scalp hair abnormalities. For this reason, a systematic step-by-step assessment of the hair and scalp should be an integral part of every initial newborn physical assessment.

SA Furdon, DA Clark, *Advances in Neonatal Care*, 2003; 3:286-296

Selenium levels in related biological samples: human placenta, maternal and umbilical cord blood, hair and nails.

A study on selenium levels has been carried out in human placenta, maternal and umbilical cord blood, hair and nails of a group of 50 mothers and in the hair of the newborns. The determinations were performed by electrothermal atomic absorption spectrometer. The selenium concentration obtained for each sample type was as follows: For the human placenta the values obtained were between 0.56 and 1.06 mcg/g (0.81 +/- 0.02 mcg/g). The levels of the umbilical cord blood were 51.1-104.2 mcg/l (76.3

Continued on pg. 4

Literature Review

Cont'd

+/-6.6 mcg/l). For the maternal blood the values measured were between 57.3 and 117.9 mcg/l (90.0 +/-15.2 mcg/l), and for hair and nails were 0.22 - 1.5 mcg/g (0.60 +/- 0.37 mcg/g) and 0.46 - 1.57 mcg/g (0.90 +/-27 mcg/g). respectively. For the hair of the newborns the values obtained were between 0.40 and 2.53 mcg/g (1.04 +/-0.48 mcg/g). The effect of different variables as age, habitat, nutritional index or gestation age of the mothers on the selenium concentration in the samples studied. The influence of the habitat is significant with a confidence level of 95% for the selenium concentration in maternal blood and umbilical cord blood samples. The influence of the mother's age is significant with a confidence level of 95% for the selenium concentration in the umbilical cord blood samples. For the placenta samples, the effect of the nutritional index is significant with a confidence level of 95%. There is a positive correlation between samples of the umbilical cord blood and the newborns' hair, between placenta and umbilical cord, and between cord blood and maternal blood. MJ Lorenzo Alonso, A Bermejo Barrera, JA Cocho de Juan, JM Fraga Bermudez, P Bermejo Barrera. *J Trace Elem Med Biol* 2005;19:49-54

Colored Email Reports

Since January 2002, our *Hair Analysis Reports* have been printed out in colors. With the growing requests for e-mail reporting, the importance of a colored first page became an issue. As a response to the wishes of the large number of Health Professionals, starting Spring 2006, we'll be able to provide you with **COLOURED FIRST PAGES** identical to our office copies.

If you want to receive your results by e-mail, please e-mail or fax us your email address.

Please note: We will send e-mail to doctors only. - No patient's e-mail addresses please.

Worth Repeating...

Though we have experienced considerable improvement during the past two years, there is still some measure of the same difficulties. Therefore we find necessary to reprint the information with some additional requests and suggestions:

- Write patient's name on the sample envelope.
- Results are printed on the language of the requisition form. Please indicate if the report wanted in any other language.
- Requests for free supply should be indicated on the bottom of the same form.
- We have to ask our new customers to send in a copy of your letterhead or business card, as Anamol Laboratories does not deal with the public.
- It is not necessary to issue an individual cheque to each sample in the same shipment.
- Please indicate form of payment by checking the appropriate space.
- Change of address or phone number should be highlighted.
- Please advise us if there is any change in your credit card number.

Services:

- Educational Seminars
- Technical Literature
- Individual Consultation
- Hair Tissue Mineral Analysis
- Urine Mineral Analysis
- Water Mineral Analysis

Anamol Laboratories Ltd.



83 Citation Drive, Unit #9
Concord Ontario, L4K 2Z6
www.anamol.com
anamol@bellnet.ca
Tel. 905-660-1225
1-888 254 4840
FAX 905 660-1955

This newsletter is produced by Anamol Laboratories as a service to its clients.

© 2006, Anamol Laboratories
Concord, Ontario, Canada