LEAD Action NEWS

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The Current State of Chelation in Australia

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The following speech was given by Prof. Gulson at "Lead Poisoning: An International Conference on Prevention and Treatment", organised and hosted by The George Foundation, and held on 8th - 10th February, 1999 in Bangalore, India.

Introduction

- Chelation is not as widespread in Australia as in USA, especially not provocation/challenge testing. Challenge testing is rarely carried out in Australia by "mainstream" medical professionals.
- Australian College of Paediatricians has recommended guidelines which follow the old CDC guidelines of chelation for blood lead concentrations (PbB) >55 µg/dL (Authors: Alperstein and Vimpani)
- Standard protocols are not really in place and there is a wide variety of treatments.

TREATMENT GROUPS

There are four main groups of treatment subjects:

1. Occupational
2. Point Source/Accidental
3. Nutritional and Environmental Medicine
4. Petrol sniffing in Aboriginals

Occupational

- Patients are usually male adults
- PbB (Lead in blood) is the exposure measure
- Occupational Health and Safety guidelines are for removal from exposure at PbB>50 µg/dL [micrograms per decilitre]
- Smelter workers / miners
- Pb paint removalists from structures
- Firearm instructors
- Number of subjects chelated per year usually in the 10's (K. Wooller, pers. comm. 1999)

Point Source/Accidental

- Patients are mostly adults and young children
- Children from smelter communities (e.g. Port Pirie, Mount Isa); chelation may be undertaken at a PbB >50 µg/dL
- Children from mining communities (e.g. Broken Hill, Mount Isa); chelation may be undertaken at a PbB >50 µg/dL
- Home renovators / pica in children. If asymptomatic, mainstream doctors may recommend removal from exposure (G. Duggin, pers. comm., 1999). Otherwise chelation may be undertaken if PbB >55 µg/dL
- Swallowing of objects such as lead sinkers; PbB may be >100 µg/dL, especially if the object is not passed
- One case of consumption of Kombucha tea, prepared in a ceramic vessel; PbB >100 µg/dL.

Nutritional and Environmental Medical Practitioners

- Patients are usually adults but in the past few years there have been an increasing number of children as young as 6 years undergoing chelation
- "Diagnosed" with metal toxicity (based on hair analysis) often followed up with an EDTA challenge test
- Practitioners suggest that several conditions may be treated with chelation including: ischemic heart disease, chronic fatigue syndrome, Parkinson's disease and Alzheimer's disease
- Symptoms of subjects undergoing chelation: neurological problems, unexplained fatigue, hypertension, learning difficulties, recurrent infections
- More than 10,000 treatments over 8 years in one clinic; compare with occupational treatments of 10's per annum.

Two "Camps"

1. Doctors who chelate at >50 µg/dL (or 60 or 70 µg/dL), or not at all if asymptomatic (but with children, if PbB >55 µg/dL, are usually chelated)
2. Nutritional & Environmental Medicine (NEM) doctors who chelate at any level (10+ µg/dL). Often no PbB is taken because of concern over the relatively short half-life of lead in blood.

Chelating Agents

- CaEDTA (+/- BAL) still used in some cases (Infuse 1g 12 h, repeat 48 h, 5d; NEM doctors follow international protocol)
- DMSA (Succimer) most common now - if available!! (problems with supply from local agent)
- NEM clinics, EDTA Intravenous infusion (commonly 6 treatments), then oral DMSA

Concerns

1. EDTA

- depletion of essential metals (Zn, Cu, Fe)
- mobilisation Pb from bone to brain (?no longer valid - Lasman et al. 1997 SOT)
- inconvenience
- cost

2. Succimer

- none of the above

Petrol Sniffers

- Patients are mostly adolescents but can be up to 30 years old
- Major problem still amongst Aboriginal communities especially in outback areas in Central Australia
- Over the period 1991-94 there were 70 admissions to the Darwin Hospital and 7 deaths
- Leaded petrol is still widely used especially outside of major cities
- Numbers hospitalised are decreasing with introduction of unleaded petrol and AVGAS (high Pb but causes severe headaches and stomach cramps)
- Cases flown to Darwin in the period 1991-1992. Symptoms - some unconscious and severely ill with encephalopathy - ataxia, hyperreflexia, coarse tremor, frontal lobe signs (positive palmomental reflex); seizures common (e.g. 70% in one group)
- PbB ranged from 85-115 µg/dL (n=24)
- EDTA + BAL treatment in the past; Succimer has been successfully used recently
- Pre chelation (day 0) mean 100 µg/dL
- Post chelation (day 20) mean 40
- Regained consciousness within 1 or 2 days of treatment (cf >1 week if unchelated)
- Observed faster neurological recovery but no controlled trial has been undertaken to verify this effect
- Little or no success with EDTA + BAL treatment for petrol sniffers in Perth, Western Australia.

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- Drs. Bart Currie and Chris Burns - Royal Darwin Hospital.
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- Prof. D. Thomas - Women and Childrens Hospital (Adelaide)
- Dr. Tristan Pawsey - Flinders Medical Centre (Adelaide)
- Dr. Kelvin Wooller – WorkCover Authority NSW (Sydney)g

Check out all the Indian Lead Conference information at www.leadpoison.net including:-

"Why Measure Pb Deposition Rates Over Short Time Periods?" and "Identifying the Source of Lead Poisoning in Each Individual Case" (August 9, 1999) by Mike van Alphen. Like Professor Gulson, Mike is a member of The LEAD Group's Technical Advisory Board who spoke at the Indian Lead Conference.

The 440 page book of the conference proceedings is available by sending US$20 to The George Foundation, 2 Penny Lane, Boonton Township, New Jersey, USA 07005.

Find out about The George Foundation at www.tgfworld.org

Quotable Quote - Prof. Brian Gulson: "The Indian Lead Conference was the best conference I've ever been to." (15/2/99)