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Lead poisoning in Recreational solvent users

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Case: We are presenting the case of a young indigenous male from a remote community with acute psychosis and was admitted under the psychiatrists. Two weels later he was referred to the acute medical team for the management of delirium. On assessment in the medical unit he had an altered conscious state, seizures and was encephalopathic. He was investigated quite extensively for his presentation. Further collateral history suggested recreational use of Avgas and he had been using it regularly for the last few weeks. Lead levels were sent and he was discussed with Toxicology unit. His initial lead level was 66µg/dl (3.23mmol/L) and he was chelated with dimercaptosuccininc acid (DMSA). He subsequently improved with resolution of symptoms. His repeat lead level was 1.18mmol/L.

He was subsequently followed up six weeks and continued to improve.

Discussion: Lead poisoning tends to be major and under reported public health problem. Our case lead to awareness about the potential exposure from this route. Multiple cases of lead encephalopathy presenting to the hospital initiated a community health response with screening of population at risk. Further to this case a few more children presented to the medical clinics in the remote communities with varying symptoms and history of Avgas sniffing. Patients had a detailed histories, neurological examination and blood tests including lead levels.

Chelation therapy with dimercaptosuccininc acid was offered for symptomatic children and asymptomatic children with lead levels of greater than 45 µg/dl.

Lead is no longer an additive in the gasoline in modern cars. Unlike commercial jets, which use kerosene-based jet fuel, piston-engine aircraft still mostly run on leaded aviation gasoline, or avgas. In fact, avgas is one of the few fuels in the United States that still contain lead, leaving it the single largest source of lead emissions in the country, according to the U.S. It has a composition of gasoline>90%, 1,2 dibromoethane 0.3-1% and tetraethyl Lead 0.1-0.2%.

Recreational petrol sniffers are unaware of the potential hazards of lead. This tends to be prevalent in the isolated communities where transportation is dependent on smaller aeroplanes. Community awareness programs were conducted to advise about the ill effects of solvent abuse focussing on Avgas. Measures have been put in place to reduce the availability of Avgas.