- Ultrafine resistance spot welding particles with similar composition and number concentration but lower mass concentration do not induce such reactions.
- Both, copper and zinc are individually able to induce such inflammation reactions. However, copper seems to have a higher potential for this induction.
- The inflammatory reaction is also reflected by an increase of Serum Amyloid A (SAA) and Interleukin 6 in the blood and by an increase of Interferon- λ and CRP in nasal secretions.

Discussion Since increases of CRP, SAA, and IL-6 indicate an increased risk for cardiovascular disease, exposure to zinc and copper containing welding fumes may have to be considered for the prevention of work related cardiovascular disease. Future studies should investigate, if the observed inflammatory reaction persists after repeated exposure

31 THE ASSOCIATION OF BLOOD LEAD LEVEL AND SERUM LIPID CONCENTRATIONS MAY BE MODIFIED BY METALLOTHIONEIN 2A POLYMORPHISMS

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10.1136/oemed-2018-ICOHabstracts.1448

Introduction Lead in blood can stimulate lipid oxidation in phosphatidylcholine and increase peroxidation in lipids. Metallothionein (MT) is a cysteine rich protein that can influence the detoxification of heavy metals and scavenge oxidative stress for free radicals. One of the most expressive functional genes in humans is the MT2A gene.

This study aims to determine if the association of the blood lead level and lipid biomarkers was influenced by MT2A polymorphisms.

Methods We recruited 677 participants after informed consent was obtained. All of the samples collected were analysed for lipid biomarkers and blood lead levels and were genotyped for MT2A polymorphisms by RT-PCR. A short questionnaire collected the medical history and alcohol and cigarette consumption information. The data were used for descriptive analyses and linear regression models.

Result The investigation revealed that lead elevated concentration increased low-density lipoprotein cholesterol (LDL-C) and decreased high-density lipoprotein cholesterol (HDL-C) by multiple linear models. The carriers of the rs10636 GC-rs28366003 AA genetic combination may be less susceptible to lead elevated concentration on HDL-C than other types.

Conclusion In conclusion, the association of the blood lead level and HDL-C may be modified by the MT2A genetic combination: the rs10636 GC-rs28366003 AA genotype could play a protective role in lead elevated concentration on HDL-C in humans.

623 ACUTE INTOXICATION WITH ARSINE GAS, A CASE REPORT

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10.1136/oemed-2018-ICOHabstracts.1449

Introduction Arsenic gas is an arsenic compound conjugated with the hydrogen ion generated from several chemical reactions. The arsenic gas poisoning is infrequent and usually generated on unexpected reactions from industrial process. Once it's absorbed into the body, inhibits many enzymatic systems lowering the intracellular glutathione concentration, this causes an oxidative stress damage and hematic, renal, mucosa and erythrocytes cellular death. Clinically manifests itself with the triad of abdominal pain, oliguria and jaundice, secondary to massive intravascular haemolysis, renal acute injury, hepatic damage and central nervous system injury.

Methods We presented a clinical course of a patient part of an outbreak of workers exposed to an incidental formation of arsenic gas while performing a cadmium extraction process after adding metallic zinc. After a few hours the patient suffered headache, epistaxis, fatigue, mucus dark diarrhoea, vomiting and red urine.

Results The patient evolved to hematuria with posterior oliguria, Generalised muscle weakness, dyspnoea and anasarca. Laboratory test showed urine blood test positive, with blood haemoglobin of 6.6 g/dL, and an haematocrit of 19.3%, Lactic dehydrogenase of 1469 U/L, blood creatinine: 14.7 mg/dL, total urinary arsenic on 10th day: 8.6 µg/L, with the diagnosis of: massive intravascular haemolysis with acute pre renal injury secondary to arsenic gas poisoning. The treatment consisted in daily haemodialysis and blood transfusions until stabilisation of the concentration of red blood cells and complementary sustainability management. The patient where stabilised, however, the renal function where no fully recovered.

Conclusion Although this pathology has a high mortality, the patient showed a favourable response to treatment, he was the only survivor of the three workers exposed directly to the gas arsenic formation after adding zinc.

1387 CORRELATION BETWEEN CLINICAL ASSESSMENT OF PARKINSONISM, SELF-REPORTED SYMPTOMS AND MOTOR DYSFUNCTION IN A MANGANESE-EXPOSED COMMUNITY

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10.1136/oemed-2018-ICOHabstracts.1450

Introduction Exposure to high levels of manganese has been associated with progressive parkinsonism. Following complaints by residents in a South African town where a large manganese smelter operates, we designed a study to investigate neurological health effects (motor and cognitive) in adults. The objective of this analysis reported was to evaluate the correlation between parkinsonism and self-reported symptoms and health status, and fine-motor control.