CURRENT AWARENESS PAPERS OF THE MONTH

Persistently elevated troponin I in paracetamol hepatotoxicity: association with liver injury, organ failure, and outcome

Context
An elevated troponin I (TnI) is associated with a poorer prognosis during critical illness.

Objective
Our aims were to determine whether significant paracetamol-induced hepatotoxicity was associated with an elevated TnI; if this elevation was persistent and was associated with worse clinical outcomes.

Materials and methods
In this retrospective cohort study, the requirement for orthotopic liver transplantation (OLT) or death and/or the development of multiorgan failure (MOF) was evaluated for 48 consecutive patients admitted to the Royal Infirmary of Edinburgh (a university tertiary referral centre) with acute liver injury or acute liver failure secondary to paracetamol overdose.

TnI was elevated (= 0.05 ng/L) in 13/48 patients (27%). This appeared to be sustained for at least 6 days which has not been shown previously in the context of Acute Liver Injury (ALI). Elevated TnI was strongly associated with MOF, with the requirement for inotropic support being the strongest predictor (p = 0.003, OR 9.00, 95% CI 2.13–37.98). TnI elevations also correlated strongly with Acute Physiology and Chronic Health Evaluation (APACHE) II scores (p = 0.0006, r = 0.482, 95% CI 0.22–0.68) and with interleukin 6 (IL-6) levels (p = 0.0001, r = 0.55, 95% CI 0.29–0.73). Although a raised TnI was associated with a markedly increased risk of death or orthotopic liver transplant (p = 0.005, OR 7.73, 95% CI 1.87–32.05) on univariate analysis, this was primarily seen in the context of MOF (SOFA score p = 0.003, OR 1.23, 95% CI 1.07–1.41) and was not an independent predictor of
death. There was no correlation between TnI or outcome with other cardiac biomarkers and markers of cardiovascular risk.

**Discussion and Conclusion**

An elevated TnI in the context of acute liver injury or liver failure following paracetamol overdose is associated with a significantly worse patient outcome but it is not an independent prognostic factor. Further studies should be undertaken to investigate the mechanism behind this elevated troponin association.

Full text available from: [http://dx.doi.org/10.3109/15563650.2013.816853](http://dx.doi.org/10.3109/15563650.2013.816853)

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**Vanadium release in whole blood, serum and urine of patients implanted with a titanium alloy hip prosthesis**


**Introduction**

Vanadium (V) is a minor constituent of the Titanium-Aluminum-Vanadium (TiAlV) alloy currently used in cementless hip prostheses. Present study aimed at verifying the correlation of vanadium levels among different matrices and assessing reference levels of the ion in a population of patients wearing a well-functioning hip prosthesis.

**Methods**

Vanadium was measured using Inductive Coupled Plasma Mass Spectrometry (ICP-MS) in whole blood, serum and urine of 129 patients implanted with a TiAlV-alloy hip prosthesis.

**Results**

The values in the serum were above the upper limit of the reference values in 42% of patients (29% in urine and 13% in whole blood). A good correlation among matrices was observed (p < 0.001). The cohort of patients (N = 32) complaining of pain or in which a loosening or damage to the prosthesis was assessed showed a significantly higher excretion of vanadium in urine as compared with the remaining asymptomatic patients (p = 0.001). The 95th percentile distribution of vanadium in the cohort of patients with a well-functioning prosthesis was 0.3 µg/L in whole blood, 0.5 µg/L in serum and 2.8 µg/L in urine, higher than in the unexposed population, especially for urine.

**Conclusions**

The presence of a prosthesis, even though well-functioning, may cause a possible release of vanadium into the blood and a significant urinary excretion. The reference values of vanadium of the asymptomatic patients with titanium alloy hip prostheses supplied information regarding the background exposure level of the ions and their lower and upper limits.

Full text available from: [http://dx.doi.org/10.3109/15563650.2013.818682](http://dx.doi.org/10.3109/15563650.2013.818682)

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**Metal-on-metal hip prostheses and systemic health: a cross-sectional association study 8 years after implantation**


Abstract and full text available from: [http://dx.doi.org/10.1371/journal.pone.0066186](http://dx.doi.org/10.1371/journal.pone.0066186)
Using Internet snapshot surveys to enhance our understanding of the availability of the novel psychoactive substance alpha-methyltryptamine (AMT)
Abstract and full text available from: http://dx.doi.org/10.3109/10826084.2013.808224

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Abstract and full text available from: http://dx.doi.org/10.1289/ehp.1205727

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Abstract and full text available from: http://dx.doi.org/10.1093/aje/kwt059

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Carcinogenicity
Beane Freeman LE, Blair A, Lubin JH, Stewart PA, Hayes RB, Hoover RN, Hauptmann M.
Mortality from solid tumors among workers in formaldehyde industries: an update of the NCI cohort.

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**Dermal toxicity**


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Medication errors


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Manganese


Mercury


Selenium


Silver


Uranium


Vanadium


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General


PESTICIDES

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