

LETTERS

METAL-ON-METAL HIP IMPLANTS

UK quality assurance of blood cobalt and chromium after hip implants

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In 2010 the Medicines and Healthcare Products Regulatory Agency (MHRA) issued a medical device alert recommending measurement of cobalt and chromium concentrations in blood from patients experiencing discomfort or pain associated with metal-on-metal hip prostheses.^{1,2} This followed concerns relating to possible adverse effects of metal released from the implants. A second alert updated the advice and provided recommendations for managing patients with and without symptoms in four groups based on the type of hip replacement.³ Accurate measurements of cobalt and chromium are imperative for implementing these alerts, both requiring that samples be sent to laboratories participating in the UK National External Quality Assessment Scheme for trace elements (TEQAS), which is accredited by Clinical Pathology Accreditation (UK).

Each month two blood specimens selected from six different pools were sent to scheme participants for analysis. During the year from April 2011 to March 2012 each of the pools was analysed on four different occasions. The pools were prepared by spiking equine blood with the metals to match patient samples and to calculate recovery of the added cobalt and chromium.

Cobalt concentrations ranged from 10 µg/L to 60 µg/L and chromium from 10 µg/L to 35 µg/L. The mean recovery for the

analysis of all 20 specimens was 96.4% (SD 2.23, coefficient of variation 2.3%) for cobalt and 96.1% (3.19, 3.3%) for chromium. The excellent agreement between the amounts in the specimens and the mean values indicates that the results reported are accurate. The agreement between the pools distributed on different occasions shows that results are also reproducible.

These results should reassure surgeons and patients that the laboratories measuring cobalt and chromium concentrations are producing results that are fit for purpose.

Competing interests: None declared.

- 1 Medicines and Healthcare Products Regulatory Agency (MHRA). Medical device alert: all metal-on-metal (MoM) hip replacements (MDA/2010/033). www.mhra.gov.uk/Publications/Safetywarnings/MedicalDeviceAlerts/CON079157.
- 2 Cohen D. How safe are metal-on-metal hip implants? *BMJ* 2012;344:e1410. (28 February.)
- 3 Medicines and Healthcare Products Regulatory Agency (MHRA). Medical device alert: all metal-on-metal (MoM) hip replacements (MDA/2012/008). www.mhra.gov.uk/Publications/Safetywarnings/MedicalDeviceAlerts/CON143782.

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