

Case Report

Apparent vaccine-thimerosal induced hypersensitivity, myelodysplastic syndrome and pancytopenia

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Abstract

A case of hypersensitivity reaction, myelodysplastic syndrome and pancytopenia, which developed after an administration of thimerosal-containing tetanus vaccine, is presented and discussed.

Key Words: Thimerosal, hypersensitivity reaction, myelodysplastic syndrome, pancytopenia.

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Introduction

Thimerosal is used as a preservative for many vaccines, and so is one of the most important organic mercury compounds to which human populations are exposed. Despite evidence of toxicity, the World Health Organization (WHO) continues to recommend the use of thimerosal-containing vaccines, especially those available in multidose vials, in countries that do not have resources for alternative vaccine preparations because the benefit-cost ratio remains very high [1]. The following report presents an account of probable thimerosal toxicity induced by vaccination in an adult woman.

Case

A forty-three-year-old woman was admitted to our department on May 1, 2006, with a history of tetanus vaccination one month previously. Immediately following vaccination she experienced difficulty in breathing, chest tightness, headache and facial flushing. Swelling started in the periorbital area, and over the next 3 days spread to her shoulders and arms, eventually affecting the whole body. She reported general fatigue and malaise and noted a jaundiced appearance. These symptoms decreased within one month but did not completely disappear. When she was referred to our department one month later, she had still facial

swelling and flushing, together with jaundice and profound weakness and fatigue.

Physical examination revealed moderate general status, ill appearance, with facial swelling and flushing, especially in the periorbital region. Her blood pressure was 110/80 mmHg, pulse rate 86/minute, and respiration rate 20/minute; other systems were normal. Urinalysis was normal. Haematological findings were WBC 2600 /mm³, hemoglobin 4.2, g/dl, hematocrit 16%, MCV 60, platelets 53.000 /mm³, PT 13 sec, and PTT 34 sec, fibrinogen 259 mg/dl, ferritin <1.5 ng/ml, serum iron 14.4 µg/dl, serum iron binding capacity 287 µg/dl, vitamin B12 379 pg/ml, folate 5 ng/ml. Blood biochemistry showed ALT 12 U/L, AST 14 U/L and AFP 0.8 ng/ml. Faecal examination showed no occult blood or parasites. Serological examination for a wide variety of bacterial and viral infections showed only a positive HAV IgG, and malignancy and autoimmune markers were negative. Abdominal ultrasonography showed normal liver size, but the liver parenchyma had a heterogeneous appearance with a granular pattern and liver biopsy showed non-specific hepatitis. Changes consistent with myelodysplastic syndrome were observed in a bone marrow biopsy.

The vaccine given was produced at the Serum Institute of India Ltd and contained the standard 0.01% thimerosal as a preservative against