european aluminium association

ALUMINIUM AND HEALTH

Fact sheet 7

ALUMINIUM IN VACCINES.

Aluminium is present in some vaccines as an adjuvant in the form of aluminium hydroxide, aluminium phosphate or aluminium hydroxyphosphate. An adjuvant is present in a vaccine to enhance the immune response, and certain vaccines need this in order to be effective.

The vaccines containing an adjuvant are primarily those against diphtheria, tetanus, pertussis and hepatitis A and B. It was observed that these vaccines were not sufficiently effective alone, and aluminium compounds are commonly used adjuvants for this purpose.

The only known reactions that can eventually be attributed to aluminium contained in vaccines are local inflammatory reactions.

In France, biopsies of deltoid muscle, common site for vaccinations, have revealed a few cases of minute inflammation of macrophages with associated necrosis, called macrophagic myofasciitis (MMF). These local lesions have been found to contain aluminium salts. The biopsies have mainly been conducted on patients complaining about muscle pains, but not localised to the injection site, and the MMF has only been found in a small number of the biopsies. Hence there is no established link between muscle pain and the small local lesion of MMF.

The quantity of aluminium present in the vaccine varies between 0.3 and 1.5 mg per dose. Considering the different vaccinations and number of repeats necessary, the maximum dose a person would receive from this over a lifetime is 15mg. This is about the same as the normal oral intake over two days.

Aluminium injected by subcutaneous and intramuscular routes is gradually dissolved and enters the bloodstream. It is then eliminated through the urine, same as aluminium taken up from the gastro-intestinal system.

Assessment of the safety of vaccines is important, also because replacement of currently used adjuvant would necessitate the thorough investigation of alternatives before these could be licensed.

Any withdrawal for safety reasons would severely affect the immunogenicity and protective effects of currently used vaccines and threaten vaccination programmes worldwide.

The World Health Organisation (WHO) initiated a broad consultation on the issue in 1999, assisted by their advisory committee on vaccines, Global Vaccine Safety Advisory Committee (GACVS).

On the recommendation of WHO a study was started to establish whether or not there is an association between local MMF lesions and any generalised illness. This is now in progress. The most recent evidence (November 2002) from this study suggests that there is no reason to conclude that administration of aluminium containing vaccines poses a health risk or to change current vaccination practise.
In France ANAES and INSERM jointly evaluated the potential secondary effects from using vaccines containing aluminium compounds for both children and adults. Their conclusions are published in a paper from September 2003: "The MMF is a histological lesion recently described in adults that until now was almost exclusively reported in France. A series of cases have assumed a link between the lesion and a vaccine containing aluminium hydroxide. At present there is no epidemiological evidence that would support a relationship between the vaccination and diseases that could be attributes to the lesions found. It must be emphasised that this adjuvant is widely used for decades in different vaccines."

References:

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