Aluminum and Vaccine Ingredients: What Do We Know? What Don't We Know?

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Thimerosal, which contains the organic compound ethyl mercury, is a known neurotoxin and used to be a major ingredient in childhood vaccines. There are over 15,000 articles in the medical literature describing the adverse health effects on the human body with exposure to varying amounts and forms of mercury.

In 1999 the American Academy of Pediatrics (AAP) urged government agencies to work rapidly toward reducing children's exposure to mercury from all sources. Because any potential risk was of concern, the AAP and the USPHS (United States Public Health Service) agreed that the use of thimerosal-containing vaccines should be reduced or eliminated. The AAP recommended that it would be a good idea to remove thimerosal from vaccines, even though according to them, there was no evidence linking childhood health issues to thimerosal exposure from vaccines. In 2008, children are still being injected with thimerosal-containing vaccines, and old stocks of thimerosal-containing vaccines manufactured by 1999 continued to be administered to children up to 2003.

However, a growing number of physicians, scientists and parents maintain that thimerosal has played, and continues to play a large role in contributing to the emergence of multiple chronic illnesses in children and adults, including the neurological spectrum disorders. Aluminum, which is present in the environment and in many childhood vaccines, may be affecting the health of our children in ways that we have yet to understand.

Aluminum is a heavy metal with known neurotoxic effects on human and animal nervous systems. It can be found in the following childhood vaccines – DTaP, Pediarix (DTaP-Hepatitis B-Polio combination), Pentacel (DTaP-HIB-Polio combination), Hepatitis A, Hepatitis B, Haemophilus influenzae B (HIB), Human Papilloma Virus (HPV), and Pneumococcal vaccines.

In 1996, the American Academy of Pediatrics issued a position paper on Aluminum Toxicity in Infants and Children which stated in the first paragraph, "Aluminum is now being implicated as interfering with a variety of cellular and metabolic processes in the nervous system and in other tissues."

A review of the medical literature on aluminum reveals a surprising lack of scientific evidence that injected aluminum is safe. There is limited understanding of what happens to children when aluminum is injected into their bodies, including whether or not it accumulates in tissues and organs or is properly eliminated from the body. It is also unknown if genetic factors affect long term adverse health outcomes for those injected with aluminum containing vaccines.

One in 6 children under the age of 18 in this country has developmental/learning disabilities, although the numbers may be higher since this 1994 report was published. Ten percent of all children have asthma. Growing numbers of children are living with different types of allergies. That means they have impairment, or even irreversible damage to their nervous and immune systems. Isn't it possible that injected aluminum plays a role in affecting the health of our children's nervous and immune systems, as the science we do have seems to suggest?

What is even more concerning is the lack of accepted scientific data explaining whether injected aluminum interacts with other vaccine ingredients to cause harm to our children. Boyd Haley, PhD, Professor Emeritus of Chemistry at the University of Kentucky completed lab experiments showing the damaging effects on nerve cells when he exposed them to aluminum, especially in the presence of other vaccine ingredients like mercury, formaldehyde, and the antibiotic neomycin. His data, however, have been ignored by the scientific, medical and governmental institutions making vaccine policies. The scientific community needs to be doing these experiments in the lab before shooting kids with these ingredients and declaring unequivocal vaccine safety for all children.

Aluminum is added to vaccines as an adjuvant so vaccines will produce a stronger antibody response and be more protective. It is this role as an adjuvant that may reveal to us the most significant relationship between aluminum in vaccines and the damage it imparts on the long term health of our children's nervous and immune systems.

A Little Science Review

Children are born with a cellular mediated immune system (TH1 cells – T-helper 1), a humoral immune system (TH2 cells – T-helper 2), and a regulator immune system (TH3 cells – T-helper 3) as major pieces of their overall immune systems. These three arms are immature when babies are born, and begin to mature as children are exposed to their environments through their nervous systems, skin, airways and intestines. Antibiotics, poor nutrition, stress, exposure to heavy metals and other environmental toxins, and the use of vaccines, may interfere with the proper maturing process of these three arms of children's immune systems. In theory, if the TH system is allowed to mature, and is not interfered with, children will develop a mature, balanced TH1, TH2 and TH3 immune system by age three.

TH1 and TH2 develop to protect children from the outside world, producing inflammation and anti-inflammation responses to foreign particles from the natural environment. TH3 immune cells develop to keep the TH1/TH2 arms of the immune system in check so the body only produces the amount of inflammation and anti-inflammation that is needed to

protect itself from exposures in the natural environment.

When TH2 cells are activated properly, either directly via the natural environment, or through a direct signal from the TH1 system, the B cell arm of the immune system is then stimulated, leading to the production of the desired protective antibodies.

It's important for the reader to know that the hallmark of a healthy, mature immune system in children is demonstrated by an equal and balanced TH1, TH2 and TH3 immune response to the natural environment. TH1, TH2 & TH3 do not work independently, and require a very important synergistic relationship to function properly in our bodies. As soon as one or more of these three arms begins to over or under work in relation to the other, chronic illness begins to express itself.

More on Aluminum

Aluminum is placed in the vaccines to selectively target the up-regulation of the humoral arm (TH2 cells) of children's immune systems, to drive the production of antibodies. The medical community leads us to believe that this production of antibodies is what imparts for children a protective nature against vaccine-preventable illnesses. Yet, this outcome may come at a cost.

There are multiple articles in the medical literature demonstrating how chronic illnesses like allergies , asthma , eczema, lupus, inflammatory bowel disease, ADD/ADHD and autism all exhibit a skewed production and over-activity of the TH2 arm of the immune system.

Similarly, chronic illnesses like juvenile diabetes mellitus and rheumatoid arthritis, multiple sclerosis, uveitis, inflammatory bowel disease, and autism all exhibit skewed production and over-activity of the TH1 arm of the immune system.

While aluminum in the vaccines is specifically targeting the over-activation of TH2 to encourage the body to produce antibodies, any direct or indirect effect of aluminum on the health or maturation of the TH1 or TH3 system is unknown. Yet, in many of these TH2 dominant chronic illnesses, TH1 and TH3 have also been shown to exhibit an impaired immune response to the environment.

Any direct or indirect effect on the health or maturation of the TH1, TH2 and TH3 arms of children's immune systems from *any* of the injected vaccine ingredients, either due to their individual action, or due to their combined interaction, is unknown as well.

The important synergistic, balanced activity of TH1, TH2 and TH3, in response to the environment is dysfunctional and impaired in all chronic illnesses. Children are not necessarily born with this dysfunction or impairment, although they may inherit the susceptibility from their parents. How then, do children develop the expression

of these TH1, TH2, TH3 impairments, into what we describe as chronic illness?

What *is* clear is aluminum pushes the TH2 immune system to over perform, and multiple chronic illnesses in children show immune systems where the TH2 immune response over performs, while TH1 and TH3 responses are also impaired. Is there a connection? By having this type of effect on the TH2 system, is aluminum in any way contributing to the development of these chronic illnesses in children; especially in those children from families with a genetic history of the above mentioned chronic illnesses?

Does aluminum also affect the TH1 immune response, unbeknownst to scientists, clinicians and parents? Does aluminum play a role in impairing the overall synergistic, balanced activity of TH1, TH2 and TH3, which is a requirement for a healthy immune system response to the natural environment? There is no scientific evidence to clarify our understanding one way or the other, but the evidence may be right in front of us to conclude otherwise.

Aluminum forces the undeveloped and immature immune system of infants and children to produce greater amounts of humoral immune cells (TH2) and antibodies, before their immune systems have a chance to adapt to the world in which they've barely had a chance to live in.

Under these circumstances, the activity of aluminum appears to play a vital role in disrupting the maturation of the immune system in infants and children through its effects on TH2 and therefore, on TH1 and TH3.

What effect this has on their overall health in the short or long term is unknown, but this model appears to help us understand how we may be contributing to the development of chronic illness in infants and children with the use of aluminum in vaccines. We also have little understanding of what might happen to the overall health of their immune systems if parents wait until later in life to expose them to vaccines containing aluminum, or if they're exposed in smaller doses one at a time.

How much of a role does injected aluminum play, either acting alone, or in conjunction with other vaccine ingredients and environmental toxins, in the selection and subsequent development of chronic illnesses, in a susceptible population of children, through the disruption of TH1, TH2, TH3? There is no science to answer this question because no one has investigated this issue.

We have no scientific studies in infants, children or adults to help us understand the nature of the progression of TH1, TH2 and TH3 immune responses to any of the injected materials in vaccines.

You cannot do research on questions that enough people don't believe is worth asking, or

are afraid of what the answers might show if the proper studies were done.

It is unfortunate that we continue to drag out this dialogue by singling out each individual vaccine ingredient as a detriment to the health of our children. First thimerosal needed to be removed, despite contentions from the medical community that there were any real medical reasons to do so, and now aluminum. According to Environmental Defense (formerly known as the Environmental Defense fund), ***all*** the vaccine ingredients are poisonous, carcinogenic or potentially harmful to the skin, gastrointestinal, pulmonary, immune and neurological systems in our bodies.

What about formaldehyde? Are we going to wait until another brave physician or scientist writes about the damaging effects of injected vaccine-containing formaldehyde on our children's brains before we are called to demand that formaldehyde be removed? Or about the problems associated with having Polysorbate-80 in the vaccines?

Polysorbate-80 is used in pharmacology to assist in the delivery of certain drugs or chemotherapeutic agents across the blood-brain-barrier. What viral, bacterial, yeast, heavy metal or other vaccine containing ingredient need to pass into the brains of our children? Do they belong in the brain? Is that part of the needed immune response to protect our children from disease? Do vaccine materials pass across the blood-brain barrier with the help of Polysorbate-80? If so, are there complications from being in the brains of our children? Is this another connection to help us get an understanding of why 1 in 150 children have autism, or 1 in 6 children has developmental/learning disabilities?

If we're going to do justice to the topic of vaccine ingredients, we need to look at the potential harm of ***all*** the vaccine ingredients at once, and examine their individual effects on our children's immune and nervous systems. Then, we can examine the interactive effects of the vaccine ingredients on human tissue, and evaluate the potential for harm, as Dr. Haley has already successfully done.

How many more children need to be potentially harmed before we invoke the precautionary principle and the Hippocratic Oath – First, Do No Harm? If there's no adequate science, and we have positive evidence of toxicity from aluminum, injected alone or in conjunction with other ingredients, and we have a potential model to understand why certain chronic conditions may be developing in a susceptible population of children, then injecting aluminum containing vaccines into anyone should stop right now until we have the proper scientific proof we need to say otherwise. We need the same scientific proof of safety for ***all*** vaccine ingredients and their interactions, and we need parents, scientists and practitioners to stand up and demand nothing less before we make matters worse.

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