Immune Activation & Autism

In early life, the brain and immune system develop together. “Cytokines” are chemicals used by the immune system for communication, but they also guide brain development. Immune activation from an infection or vaccine can cause elevated cytokines in the brain, thereby disrupting brain development. Specifically, immune activation can cause life-long brain injury and mental illnesses including autism, seizures/epilepsy, and schizophrenia. Developmental brain injury by cytokines has been studied extensively in humans, mice, and monkeys. Immune activation is recognized as a valid model for human autism, schizophrenia and other disorders. Research has identified interleukin-6 (IL-6) and interleukin 17a (IL-17) as specific cytokines responsible for autism. IL-6 at low levels is necessary for healthy brain development, but elevated brain IL-6 during development causes autism.

Immune activation in infants can cause brain injury. This is because the brain develops for years after birth. For example, synapse formation, which is disrupted by IL-6, is most intense at ages 0-2, when vaccines are given.

Early life immune activation causes many abnormalities associated with autism: mitochondrial dysfunction, Purkinje cell loss, microbiome dysbiosis, chronic brain inflammation, and autoimmunity. It is established beyond reasonable doubt that autism is caused by immune/microglial activation and IL-6/IL-17 specifically.

Vaccines are designed to cause immune activation. But can vaccines cause immune activation in the brain? Can vaccines induce IL-6 in the brain? The answer to these questions is YES.

The aluminum (Al) adjuvant in vaccines can travel to the brain and stay there, causing long-term brain inflammation.

Aluminum Adjuvant & Immune Activation

Aluminum (Al) adjuvant is necessary in many vaccines for stimulating immunity. The Al adjuvant dosages infants receive in the CDC schedule cause neurological injury, brain inflammation, learning and memory impairment, and behavioral abnormalities in animal experiments (@ 100, 200, 300 and 550 mcg/kg).

It is now clear that vaccines contain brain-damaging amounts of Al adjuvant.

Aluminum from CDC Schedule

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose (mcg/kg)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>74 mcg/kg</td>
<td>(1 vaccine with 250 mcg, 3.4 kg infant)</td>
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<tr>
<td>2 months</td>
<td>245 mcg/kg</td>
<td>(6 vaccines with 1225 mcg, 5 kg infant)</td>
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<tr>
<td>4 months</td>
<td>150 mcg/kg</td>
<td>(5 vaccines with 975 mcg, 6.5 kg infant)</td>
</tr>
<tr>
<td>6 months</td>
<td>153 mcg/kg</td>
<td>(7 vaccines with 1225 mcg, 8 kg infant)</td>
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<tr>
<td>TOTAL</td>
<td>3675 mcg aluminum</td>
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Aluminum dosage varies by vaccine manufacturer and infant weight. Chart shows maximum possible dosages for average-weight infants.

Al adjuvant is made of microscopic particles. The particles cause immune activation wherever they go, and they travel into the brain. Al adjuvant particles persist in the brain for months or years, causing chronic immune activation. Aluminum elevates IL-6 in the brain. Hepatitis B vaccine (contains Al adjuvant) elevates IL-6 in the brain. Aluminum also causes methylation impairment, which is always present in autism.

Al adjuvant particles are transported around the body by immune system cells (macrophages), in response to a signal called “MCP-1.” Elevated MCP-1 causes Al adjuvant transport into the brain. Infants that become autistic have high MCP-1 at birth. Vaccines (e.g. MMR) can trigger MCP-1, and thereby accelerate transport of Al particles into the brain. Brain accumulation of Al adjuvant can take months or years. Hence, brain injury can develop months or years after vaccination.

For further reading: VaccinePapers.org
How Aluminum Adjuvant Causes Autism

<table>
<thead>
<tr>
<th>Aluminum Adjuvant Injection</th>
<th>IL-6 Production &amp; Microglial Activation in the Brain</th>
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</tr>
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<td>Al Adjuvant Particles Travel Into the Brain</td>
<td>IL-6 Production &amp; Microglial Activation in the Brain</td>
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There is now strong scientific evidence that vaccines cause autism by an immune activation mechanism. Aluminum adjuvant is implicated because it travels into the brain where it causes microglial activation and elevated IL-6 production.

Today about 1 in 6 American children suffer from a neurodevelopmental disorder, a large increase compared to decades ago. Vaccines are a primary cause of this new crisis.

**Vaccine advocates are silent about the science of Al adjuvant toxicity and immune activation.**

** OBJECTIONS ANSWERED **

**What about the studies showing vaccines do not cause autism?**

They look only at MMR or thimerosal. MMR does not contain Al. Also, MMR-autism studies ignore healthy user bias, created when parents do not give MMR to children with neurological injury caused by prior Al-containing vaccines. Healthy user bias conceals evidence of harm in vaccine safety studies. (46)

**But aluminum has been used in vaccines for over 80 years.**

TRUE. But has not been studied for neurotoxicity or long-term safety until recently. Al dosage from vaccines increased dramatically in the last 25 years, in parallel with childhood neurodevelopmental disorders.

**Aluminum is everywhere and ingested constantly. It cannot be harmful.**

99.7% of ingested aluminum is not absorbed. The absorbed 0.3% comprises dissolved ions, which are rapidly eliminated in urine. Al adjuvant is made of particles, which remain in the body for years. Babies receive about 175X more Al from vaccines than from mother’s milk in the first 6 months.

**But immune activation studies are based on prenatal immune activation, not postnatal. Studies of postnatal immune activation also show brain injury.**

The brain can be injured by immune activation prenatally or postnatally. The CDC recklessly promotes multiple vaccines for pregnant women. Influenza vaccination during pregnancy increases autism risk (4 additional autism cases per 1000 vaccinations). (41)

**But autism is an inherited, genetic disorder. Autism is a gene-environment interaction between vaccines and genes that create a vulnerability to vaccines. Heritability estimates are from twin studies, which misclassify gene-environment interaction as purely genetic. Vaccines cause autism in people with the genes; the genes per se do not cause autism.** (44, 45)

**Are there ways to prevent damage from aluminum and immune activation?**

YES. The nutrients silica, taurine and curcumin reduce Al neurotoxicity. Vitamin D reduces IL-17, and can prevent and reverse autism. (37, 38, 39)

**Maternal immune activation yields male offspring with deficient social and communicative behavior, as well as high levels of repetitive behaviors, all of which are hallmarks of autism.** (34)

— Dr. Paul Patterson, et al. (California Institute of Technology), 2012

**“Interleukin-6 is necessary and sufficient for producing autism in the offspring…”** (112)

— Dr. Eduardo Pineda, et al. (David Geffen School of Medicine, UCLA), 2013

**REFERENCES**

Citations available at: vaccinepapers.org/autism-brochure