MERCURY TOXICITY: GENETIC SUSCEPTIBILITY AND SYNERGISTIC EFFECTS

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VISUALIZATION OF MERCURY EMITTING FROM A DENTAL AMALGAM

- From: www.uninformedconsent.com
- David Kennedy’s IAOMT tape

This is Mercury escaping from an amalgam filling. The filling is 50 years old. The tooth was extracted 15 years ago.
BIRTH-HAIR MERCURY OF AUTISTIC VS. CONTROL GROUPS

Data from Amy Holmes, Mark Blaxill & Boyd Haley, Int. J. Toxicology v22, P 1-9, 2003

Hair Hg level (ppm)

Non-autistic
Mean=3.79
n=34

Autistic
Mean=0.47
n=94
ACTUAL VERSUS PREDICTED BIRTH HAIR MERCURY LEVELS

Hair Hg level = (5.60) + 0.04( amalgam volume) + 1.15( fish consumption) + 0.03( vaccine): 

$R^2 = 0.79$

Data from A. Holmes, M. Blaxill & B. Haley, Int. J. Toxicology, V22, p1-9, 2003
MERCURY BIRTH HAIR LEVELS VS. AMALGAM FILLINGS IN AUTISTIC AND CONTROL GROUPS

Data from A. Holmes, M. Blaxill & B. Haley, Int. J. of Toxicology v22, p1-9, 2003
BIRTH-HAIR MERCURY BY SEVERITY OF AUTISM

SYNERGISTIC TOXICITIES

Neuron Survival (% Initial Number)

Time (hr) After Treatment

Control
50 nM thimerosal
500 nM Al(OH)₃
1.75 µg Neomycin/ml
50 nM Thimerosal
500 nM Al(OH)₃
1.75 µg Neomycin/ml

DR. MARK LOVELL
COLLABORATOR

50 NANOMOLAR

+ TESTOSTERONE

Al:NEOMYCIN:TESTERONE
EFFECTS

+ TESTOSTERONE
Hg & THIMEROSAL DISPLAY ADDITIVE TOXICITIES.
ACRODYNA: PINK DISEASE

• Acrodynia affected 1 of 500 infants in the early 1900s in the USA. The cause was Hg₂Cl₂ (calomel) in the teething powder used on infants. The powder was removed from the market and acrodynia disappeared.

• This historical fact implies that low level exposure of infants to one of the least toxic forms of mercury can cause a neurological disease.
ELEVATED MERCURY IN IDIOPATHIC DILATED CARDIOMYOPATHY (IDCM).
WHERE DOES Hg COME FROM?

<table>
<thead>
<tr>
<th>LEVELS ng/g</th>
<th>Hg</th>
<th>Sb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>8.0</td>
<td>1.5</td>
</tr>
<tr>
<td>IDCM</td>
<td>178,400</td>
<td>19.260</td>
</tr>
</tbody>
</table>

Controls were patients with valvular or ischemic heart disease.
Question is ‘where does this mercury come from?’ Athletic youth die of IDCM.
• “In contrast, in the Sechylles study of >700 children, exposure was to marine fish only, and boys with higher levels of hair mercury performed better on some tests, including the Boston Naming Test and 2 tests of visual motor coordination.”

• The above observation has lead some to dismiss Hg as being causal for any neurological problems in youth.

• However, it is likely in light of the autistic observations that the boys with higher hair Hg levels were the best at excreting Hg or Methyl-Hg.
Hg levels in hair & nails of AD


- “Mercury is decreased in the nail of AD subjects compared to controls”

- “Mercury tended to decrease in nail with increasing age of patient, and with the duration and severity of the dementia.”

- “This decrease is counter to the elevated levels of Hg observed in AD brain, as compared to age-matched controls.”
Hg Levels in Human Brain

• Saxe et al, with Ehmann and Markesbery in Alzheimer’s Disease, Dental Amalgam and Mercury, JADA v130, p191-199, 1999, determined Hg levels in the brains of 101 human subjects, mostly Nuns, both AD and normals.

• The histogram in this paper showed 6 of 101 subjects with brain Hg levels above 200 ng/g wet weight (C=236, 248, 319: AD=394, 622, 698). This represents between 1.2 & 3.5 micromolar, or highly toxic, levels of Hg in 6% of these subjects. At 100 ng/g Hg this increases to about 15% of subjects with highly toxic levels of brain mercury.

• This indicates that certain adult individuals do not effectively excrete mercury from their brain tissue.
HgEDTA Induces Aberrant \([^{32}P]8\text{N}_3\text{GTP-}\beta\text{-Tubulin Interactions Indicative of AD}\)
Autoradiogram Showing Thimerosal Inhibition of $[\gamma^{32}\text{P}]\text{8N}_3\text{GTP}$ Photolabeling of Brain $\beta$-tubulin

<table>
<thead>
<tr>
<th>$\mu$M of Thimerosal</th>
<th>0</th>
<th>2.5</th>
<th>2.5</th>
<th>5</th>
<th>5</th>
<th>10</th>
<th>10</th>
<th>20</th>
<th>20</th>
<th>0</th>
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</thead>
<tbody>
<tr>
<td>Exposed to UV</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
</tbody>
</table>

$60\,\text{kDa}$- $\beta$-tubulin (55 $\text{kDa}$) $45\,\text{kDa}$- $21\,\text{kDa}$-
CONTRAST BETWEEN BIRTH HAIR Hg LEVELS AND BODY Hg LEVELS

• Autistic children have much lower Hg levels in their birth hair, yet

• Numerous physicians have reported that autistic children carry a higher mercury body burden than control children.

• The obvious explanation is micro-mercuralism & genetic susceptibility to retention toxicity.

• There is an obvious gender difference. This is explained by testosterone effects on T-toxicity.
CONCLUSIONS

• THERE APPEARS TO BE A SUBSET OF THE POPULATION THAT CANNOT EFFECTIVELY EXCRETE MERCURY AND ARE AT GREATER RISK TO EXPOSURES TO MERCURY THAN ARE THE GENERAL POPULATION. GENETIC SUSCEPTIBILITY IS CRITICAL.

• PRESENCE OF OTHER HEAVY METALS, ANTIBIOTICS, ETC. MAY ENHANCE THE TOXICITY OF THIMEROSAL. SYNERGISTIC TOXICITIES MUST BE CONSIDERED.

□ ESTROGEN DECREASES THIMEROSAL TOXICITY WHEREAS TESTOSTERON INCREASES THE TOXICITY. GENDER EFFECTS ARE INVOLVED.