Did Acetaminophen Provoke the Autism Epidemic?

Alternative Medicine Review
Volume 14; Number 4; 2009; pp. 364-372

Peter Good: This article has 57 references.

BACKGROUND FROM DAN MURPHY:

This study presents several lines of evidence to support the connection between acetaminophen (Tylenol®) and autism. It was in 1980 that the Centers of Disease Control in the US warned the public about an increased risk of Reye’s syndrome from giving young children aspirin, and acetaminophen (Tylenol®) quickly became the dominant drug for fever and pain control in young children. The author presents a graph showing the incidence of autism remained flat for decades, and then experienced a sharp and dramatic rise beginning in 1981. This article presents evidence to explain this association.

KEY POINTS FROM THIS STUDY:

1) In 2008 it was speculated that autism could be triggered by acetaminophen (Tylenol®) given for the fever and pain brought on by the measles-mumps-rubella (MMR) vaccine.

2) There has been an exponential rise in the incidence of autism since 1980, when acetaminophen began to replace aspirin for infants and young children. This occurred following the Centers for Disease Control and Prevention warning that aspirin was associated with Reye’s syndrome. Interestingly, the association between aspirin induced Reye’s syndrome has been subsequently “compellingly debunked.” [Orlowski JP, Hanhan UA, Fiallos MR. Is aspirin a cause of Reye’s syndrome? A case against. Drug Saf 2002;25:225-231]

3) “Children given acetaminophen after the MMR vaccine were significantly more likely to become autistic than children given ibuprofen.” Compared to controls, children with autism were six times more likely to have taken acetaminophen after the MMR vaccine.

4) Because of the fear of Reye’s, since the 1980s, parents, pediatricians, and hospitals today commonly give infants and young children acetaminophen or ibuprofen for fever and pain.

5) The rapid rise in autism and the use of acetaminophen is synchronous. By 1995 the frequency of autism was approximately 10 times greater than that of 1980.

6) Prior to 1981, most children with autism were born with it. Starting in 1981, the most drastic rise in autism had an onset at 18-months, coinciding with the MMR vaccine and the use of acetaminophen (Tylenol®) given to control vaccine induced fever and pain.
7) In autumn of 1982 seven people died after ingesting Tylenol capsules laced with cyanide; in 1986 one person died after ingesting Tylenol capsules similarly tampered with. These events precipitated sharp declines in nationwide sales of acetaminophen, accompanied by declines in the numbers of California children with autistic disorders born in 1984 and 1987.”

8) Parents may not realize:
- **Infant’s** Tylenol is three times more concentrated than children’s Tylenol.
- Children’s cold remedies often contain acetaminophen.
Consequently, acetaminophen overdose in young children is not uncommon.

9) “Acetaminophen overdose depletes the liver’s supplies of sulfate and glutathione, impairing its ability to detoxify and excrete harmful substances.”

10) Autistic episodes are commonly triggered when children eat wheat, corn, sugar, apples, bananas, chocolate, cheese, and other dairy products. These foods are high in phenolic amines (dopamine and serotonin) that depend on sulfate/cysteine for excretion. Autistic children have problems with cysteine metabolism.

11) The liver uses cysteine to synthesize glutathione which binds to toxic metals like mercury, making them water soluble for excretion. “Liver detoxification is almost universally impaired in children with autism.”

12) Autistic children should not be given acetaminophen because they have defects in the sulfation (detoxification)/excretion pathways.

13) This inability to optimally sulfate phenols and amines may lead to accumulations of unmetabolized catecholamine neurotransmitters (dopamine, norepinephrine, and epinephrine) in the brain, with neurotoxic effects. **[Very Important for Chiropractors] This effect is worsened with the consumption of acetaminophen.**

14) Vitamin B6/magnesium supplements may benefit autistic children because the bioactive form of B6 (pyridoxal 5’-phosphate) is necessary for the conversion of methionine to cysteine.

15) Autistic children have significantly reduced plasma levels of methionine, cysteine, and glutathione and reduced methylation capacity.

16) “Acetaminophen given infants before the MMR vaccine may set the stage for autism, notably when given for reactions to the diphtheria, tetanus, and acellular pertussis (DTaP) vaccine at ages two, four, and six months – a vaccine ‘with the most fever/pain’.”

17) Because autistic “children lack capacity to metabolize and excrete foreign and native toxins of all kinds, the most effective general countermeasure may be to
increase their sulfur substrate, e.g., via magnesium sulfate (Epsom salts) in bathwater and/or careful doses in orange juice. Oral magnesium sulfate, which is poorly absorbed, draws water into the intestines, potentially causing diarrhea; whereas, well-absorbed magnesium taurate provides magnesium as well as sulfur from taurine.”

18) “Almost half of autistic children and adults benefit when given oral vitamin B6 plus magnesium (optimal daily dose on average: 8 mg vitamin B6/lb body weight plus 4 mg magnesium/lb).”

19) Good sources of sulfur are cabbage, onions, garlic, dried fruit, oral supplements like whey protein and methylsulfonylmethane (MSM), and a high-protein diet.

20) When acetaminophen overdose depletes the liver’s supplies of sulfate and glutathione, the current treatment is N-acetylcysteine to replenish intracellular glutathione.

21) There are reports of significant improvements in behavior of autistic children after removing gluten (wheat) and casein (dairy) products from their diets.

22) The authors warn that aspirin may cause more problems for autistic children than acetaminophen because they may be very sensitive to salicylates.

23) The mercury-containing preservative thimerosal in vaccines depletes glutathione.

24) Acetaminophen suppresses the immune system and depletes the liver’s supplies of detoxifying agents (glutathione).

25) “Acetaminophen taken during pregnancy may provoke autism present at birth; acetaminophen given after birth (e.g., for vaccine reactions) may provoke autistic regression.” [Key Point]

COMMENTS FROM DAN MURPHY
My take home message from these articles is that pregnant mothers and children should not be given Tylenol or other products containing acetaminophen:
Article Review 16-14: Can autism be triggered by acetaminophen activation of the endocannabinoid system?
Article Review 21-14: Evidence that Increased Acetaminophen use in Genetically Vulnerable Children Appears to be a Major Cause of the Epidemics of Autism, Attention Deficit with Hyperactivity, and Asthma
Article Review 22-14: Prenatal and perinatal analgesic exposure and autism: an ecological link.