Biological Evidence of Significant Vaccine Related Side-effects Resulting in Neurodevelopmental Disorders.

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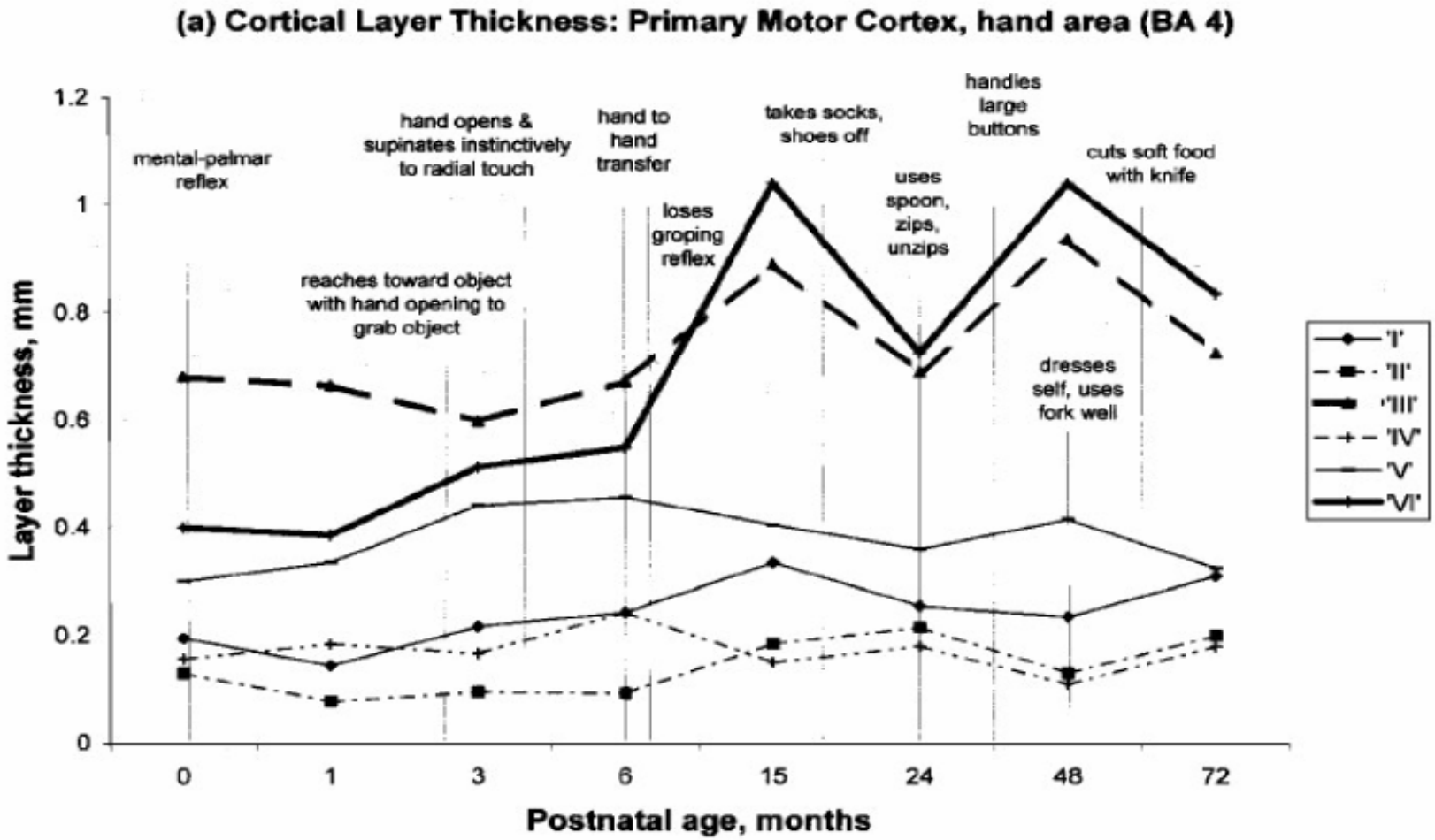
Parents Brought us the Concern

- In the scenarios of autism linked to Thimerosal and MMR, mothers complained to clinicians and researchers that vaccines precipitated a loss of function and various other medical problems.
- Often times the profession met them with skepticism and dismissed their concerns.
- Their persistence forced us to listen and investigate.
- Today, I present what we have discovered.

Our Approach

- Let the history and symptoms guide our investigations of the foundational problems
- Ask answerable questions regarding the biochemistry, immunology, virology, toxicology and genomics
- Look for patterns
- Assemble the pieces

Timing is Everything!



Landing BH, Shankle WR, Hara J, Brannock J, Fallon JH. **Pediatr Pathol Mol Med. 2002 May-Jun;21(3):321-42.**

Mercury Questions

- If Mercury is associated with autistic – encephalopathic neurodevelopmental disorders,
- Can we find elevated levels in children?
- If levels are elevated, is it related to abnormalities in the Methionine Transsulfuration Pathway with resultant low cysteine, low glutathione and low metallothionein?

Story

Autism linked to preservative in common childhood vaccines

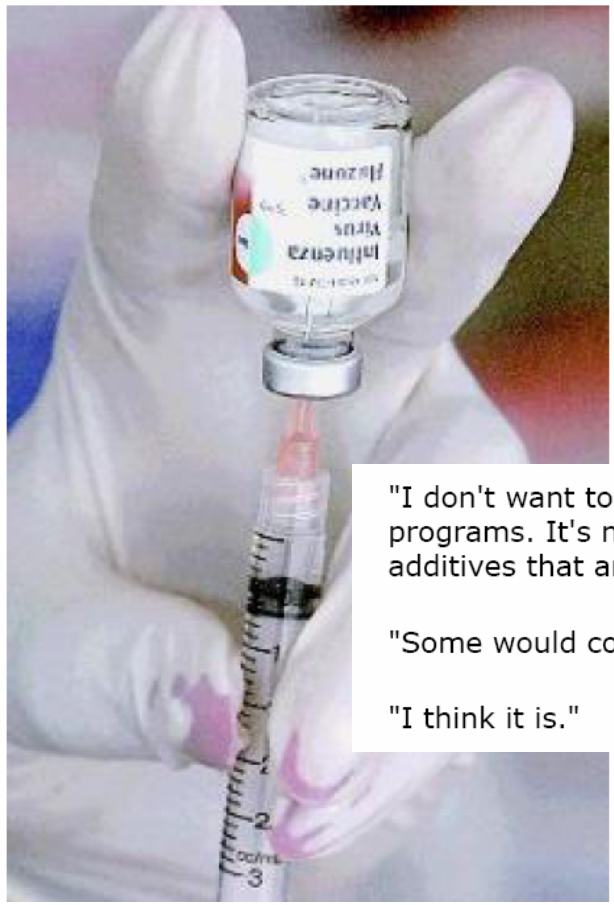
Alarmed U.S. researchers peg mercury-based chemical as 'smoking gun'

Sharon Kirkey
CanWest News Service

February 5, 2004

OTTAWA -- Scientists have found what they believe could be a "smoking gun" linking vaccines to autism and attention-deficit hyperactivity disorder in children.

In a study that was rushed to print online today -- two months ahead of its scheduled publication in the journal Molecular Psychiatry -- U.S. researchers have discovered an apparent link between thimerosal, a controversial mercury-based preservative once commonly used in childhood vaccines, and an increased risk of neurological disorders such as autism and ADHD.



"I don't want to impair the public-health importance of vaccine programs. It's not the vaccines that are the problem -- it's the additives that are the problems.

"Some would consider [thimerosal] a smoking gun," Deth said.

"I think it is."

A pattern of public deception?

But one of Canada's leading experts in vaccination says large studies have repeatedly failed to find any association between brain damage and vaccines that do, or don't, contain thimerosal.

There's no evidence that the low doses of thimerosal that the researchers tested would even cross a child's blood-brain barrier, Gold said.

Dr. Ronald Gold, professor emeritus of pediatrics at the University of Toronto and author of Your Child's Best Shot: A Parent's Guide to Vaccination.

ARE THESE TRUE STATEMENTS?

Accidental ethyl mercury poisoning with nervous system, skeletal muscle, and myocardium injury.

J Neurol Neurosurg Psychiatry. 1980 Feb;43(2):143-9.
Cinca I, Dumitrescu I, Onaca P, Serbanescu A, Nestorescu B.

Four case reports are presented of patients who ate the meat of a hog inadvertently fed seed treated with fungicides containing ethyl mercury chloride. The clinical, electrophysiological, and toxicological, and in two of the patients the pathological data, showed that this organic mercury compound has a very high toxicity not only for the brain, but also for the spinal motor neurons, peripheral nerves, skeletal muscles, and myocardium.

Archives of Disease in Childhood, 1977, **52**, 962–964

Organ mercury levels in infants with omphaloceles treated with organic mercurial antiseptic

D. G. FAGAN, J. S. PRITCHARD, T. W. CLARKSON, AND M. R. GREENWOOD

From the Departments of Pathology and Neurology, the Hospital for Sick Children, Toronto, Canada, and the Environmental Health Sciences Center, University of Rochester School of Medicine, Rochester, N.Y., USA

Regarding Thimerosal…

Organic mercurial antiseptics should be heavily restricted or withdrawn from hospital use, as the fact that mercury readily penetrates intact membranes and is highly toxic seems to have been forgotten. Equally effective and far less toxic broad-spectrum antifungal and antibacterial topical antiseptics are currently available.

The pattern of prenatal exposure to Thimerosal from anti-Rho immunoglobulin has been ignored when estimating pediatric risk.

Iatrogenic exposure to mercury after hepatitis B vaccination in preterm infants

Gregory V. Stajich, PharmD, Gaylord P. Lopez, PharmD, ABAT, Sokei W. Harry, MBBS, MPH, and William R. Sexson, MD

(J Pediatr 2000;136;679-81)

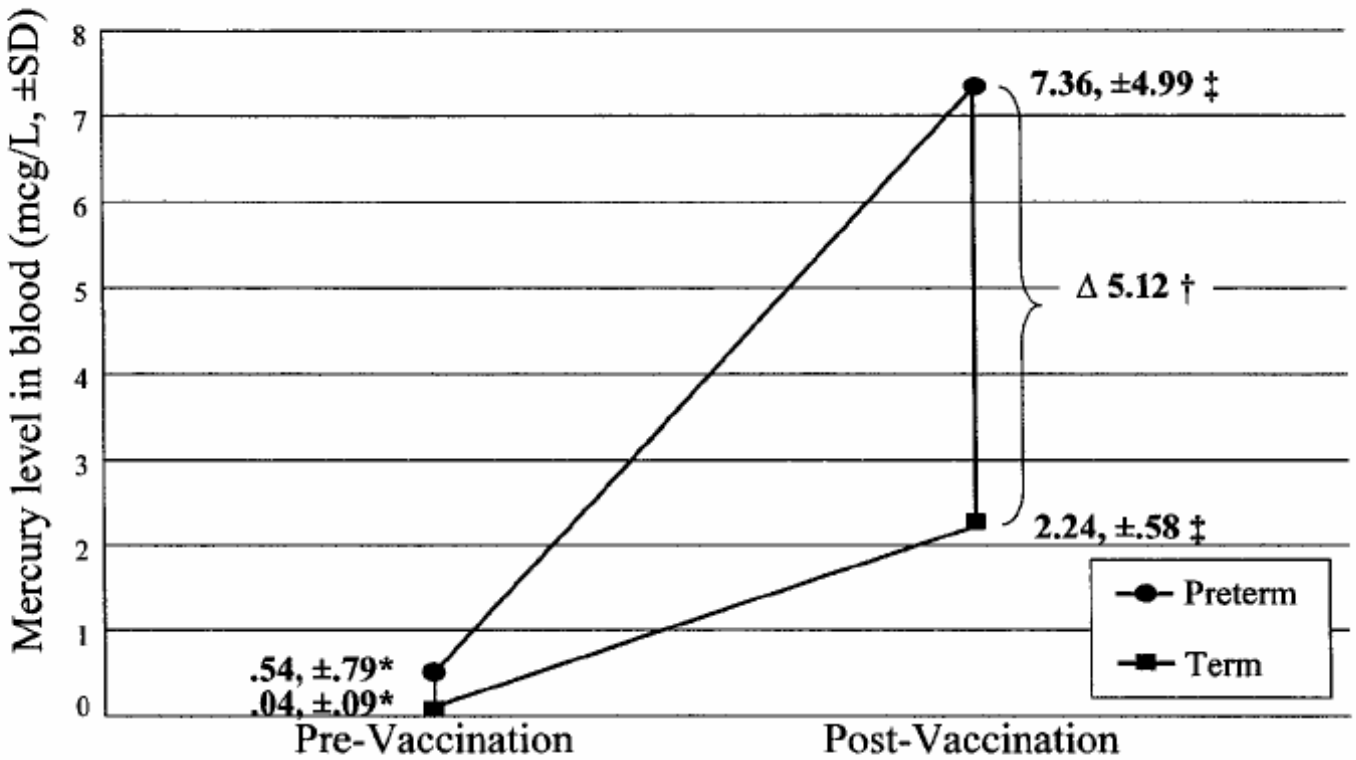


Figure. Difference in mean mercury levels (in micrograms per liter) between preterm and term infants. ‡$P < .01$; †$P < .01$; *$P = .2$.

WHO INFORMAL MEETING ON REMOVAL OF THIOMERSAL FROM VACCINES AND ITS IMPLICATIONS FOR GLOBAL VACCINE SUPPLY

May 21st 2002

WHO HQ GENEVA

Obtaining regulatory approval for the new formulated thiomersal-reduced or-removed vaccines involves complex activities that are costly and time consuming.

The actions required from WHO in order to ensure continued availability of these vaccines include the following:

- Clarify the regulatory situation
- Lobby Ministry of Health and senior regulators.
- Continue dialogue with EMEA, Korea and Canada
- Learn about the potential use of the USA export provisions
- Contact potential recipient countries (of bulk) to see if they would play a bigger regulatory role and become finishers of the vaccines
- Develop a strong advocacy campaign to support ongoing use of thiomersal
- Involve developing country regulatory agencies in all these decisions

So, WHO is ignoring the IOM recommendations calling for removal of Thimerosal / thiomersal and actually trying to encourage its use!

“Sixty minutes of thinking of any kind is bound to lead to confusion and unhappiness.”

- James Thurber

- Studies have found that several widespread environmental contaminants can damage children's developing brain and nervous system. Childhood exposure to lead contributes to learning problems such as reduced intelligence and cognitive development.
- Studies also have found that childhood exposure to lead contributes to attention-deficit/ hyperactivity disorder and hyperactivity and distractibility; increases the likelihood of dropping out of high school, having a reading disability, lower vocabulary, and lower class standing in high school; and increases the risk for antisocial and delinquent behavior.
- Methylmercury also has negative impacts on children's neurological development. Studies of children whose mothers had high intakes of mercury-contaminated seafood prior to conception found adverse impacts on intelligence and decreased functioning in the areas of language, attention, and memory.
- Particularly high levels of exposure to mercury in the womb have been found to cause mental retardation.

First Official Recognition of Thimerosal Dangers Made -May 2003

"The CDC's failure to state a preference for thimerosal-free vaccines in 2000 and again in 2001 was an abdication of their responsibility. As a result, many children received vaccines containing thimerosal when thimerosal-free alternatives were available."

-"Mercury in Medicine- Taking Unnecessary Risks", a report prepared by the Staff of the Subcommittee on Human Rights and Wellness Committee on Government Reform United States House Representatives, May 2003

The Mercury Elevated Levels Question

A Case-Control Study of Mercury Burden in Children with Autistic Spectrum Disorders

Journal of American Physicians and Surgeons Volume 8 Number 3 Fall 2003

J Bradstreet, D Geier, J Kartzinel, J Adams, & M Geier

"**Our study compares mercury excretion after a three-day treatment with an oral chelating agent, meso-2, 3-dimercaptosuccinic acid (DMSA), in children with autistic spectrum disorders and a matched control population. Overall, urinary mercury concentrations were significantly higher in 221 children with autistic spectrum disorders than in normal controls (Relative Increase (RI)=3.15; P < 0.0002). Additionally, vaccinated cases showed a significantly higher urinary mercury concentration than did vaccinated controls (RI=5.94; P < 0.005). Similar urinary mercury concentrations were observed among matched vaccinated and unvaccinated controls, and no association was found between urinary cadmium or lead concentrations and autistic spectrum disorders."**

Population Type	Number of Boys	Number of Girls	Mean Age in Years (Range)	Mean Urinary Mercury (mcg/ g) creatinine (Range)
Cases	183	38	6.25 (3 to 15)	4.06 ± 8.59 (0 to 58.65)
Controls	14	4	8.85 (3 to 16)	1.29 ± 1.54 (0 to 6.2)

Table 1. Summary of 221 Cases and 18 Controls

	Heavy Metal Examined	Population Examined	Heavy Metal Level (mcg/g creatinine)
	Mercury	55 Cases	6.42 ± 12.69
	Mercury	8 Controls	1.08 ± 1.12
Statistical Assessment			Relative Increase = 5.9 P < 0.005 95% CI: 1.90 to 8.79
	Cadmium	55 Cases	0.48 ± 0.42
	Cadmium	8 Controls	0.36 ± 0.22
Statistical Assessment			Relative Increase = 1.3 P = 0.35 Not Significant
	Lead	55 Cases	18.2 ± 43.3
	Lead	8 Controls	11.8 ± 8.6
Statistical Assessment			Relative Increase = 1.5 P = 0.34 Not Significant

Table 2. Matched Cases and Controls for Heavy Metal Levels Following a 3-Day DMSA Treatment

	Heavy Metal Examined	Population Examined	Heavy Metal Level (mcg/g creatinine)
	Mercury	5 Vaccinated Controls	0.70 ± 0.71
	Mercury	5 Unvaccinated Controls	1.98 ± 2.40
Statistical Assessment			P = 0.35 Not Significant
	Cadmium	5 Vaccinated Controls	0.42 ± 0.27
	Cadmium	5 Unvaccinated Controls	0.50 ± 0.27
Statistical Assessment			P = 0.65 Not Significant
	Lead	5 Vaccinated Controls	14.0 ± 10.1
	Lead	5 Unvaccinated Controls	16.1 ± 8.5
Statistical Assessment			P = 0.73 Not Significant

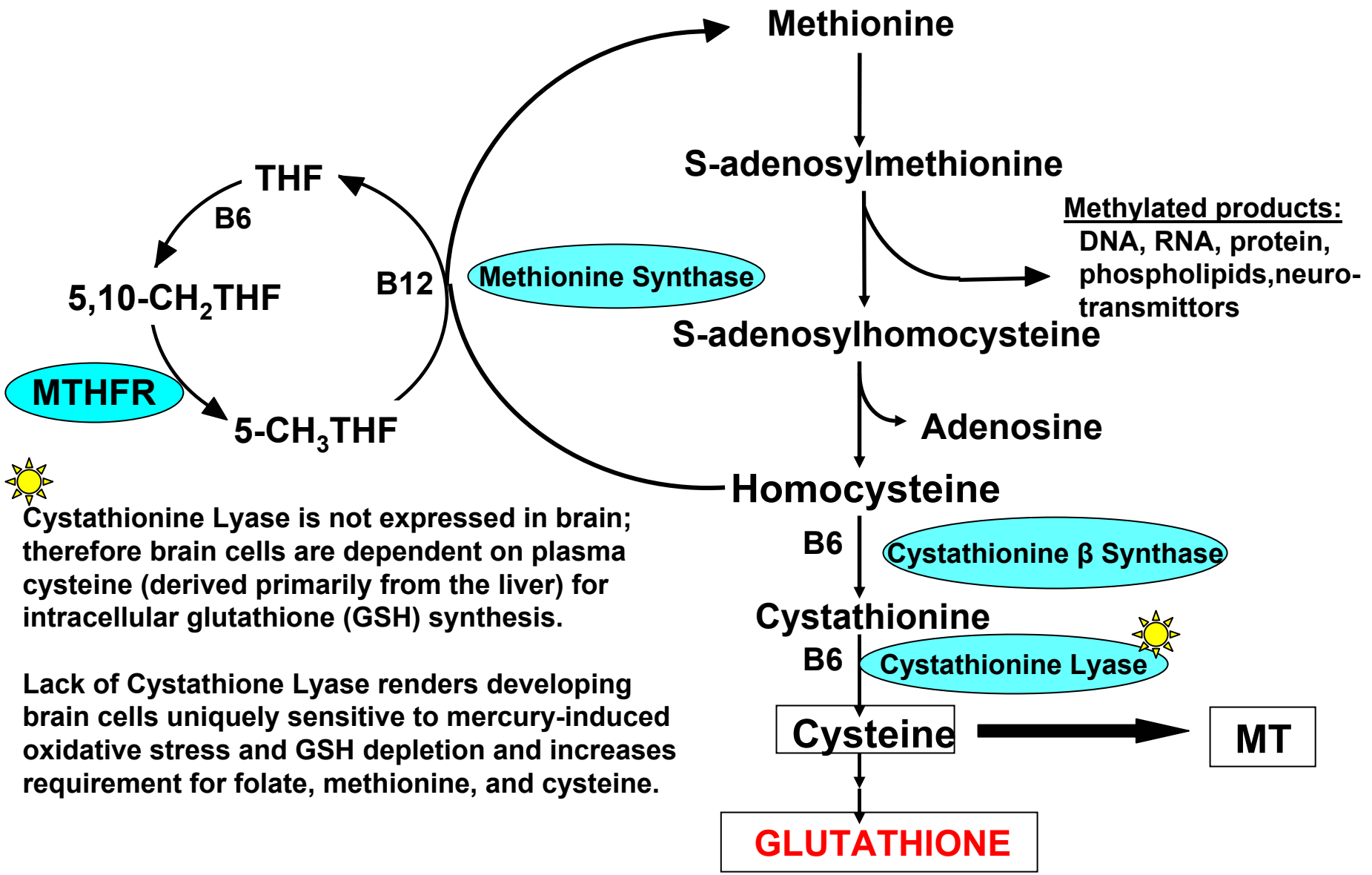
Table 3. A summary of a comparison of matched vaccinated and unvaccinated controls for heavy metal levels following a three-day DMSA treatment

Answer: Yes, there are elevated relative burdens of mercury in children with ASD

The Methionine Transsulfuration and Methylation Pathway – Low Cysteine, Glutathione and MT Question

Here - we had major help from Jill James PhD

GLUTATHIONE SYNTHESIS IN THE BRAIN IS DEPENDENT ON HEPATIC CYSTEINE SYNTHESIS AND EXPORT



Cystathionine Lyase is not expressed in brain; therefore brain cells are dependent on plasma cysteine (derived primarily from the liver) for intracellular glutathione (GSH) synthesis.

Lack of Cystathione Lyase renders developing brain cells uniquely sensitive to mercury-induced oxidative stress and GSH depletion and increases requirement for folate, methionine, and cysteine.

Findings of Cysteine and Methionine Transsulfuration Abnormalities

Jill James PhD

Presented DAN Conference October 2003

Table 1	Control Children n=33	Autistic Children n=20	p value
Methionine (µmol/L)	30.6 ± 6.5	19.3 ± 9.7	0.001
SAM (nmol/L)	90.0 ± 16.2	75.8 ± 16.2	0.01
SAH (nmol/L)	20.1 ± 4.3	26.1 ± 5.4	0.001
Homocysteine (µmol/L)	6.3 ± 1.2	5.4 ± 0.9	0.01
Adenosine (µmol/L)	0.28 ± 0.16	0.39 ± 0.19	0.05
Cysteine (µmol/L)	210 ± 18.5	163 ± 14.6	0.001
Total glutathione (µmol/L)	7.9 ± 1.8	4.1 ± 0.5	0.001
Oxidized Glutathione (nmol/L)	0.3 ± 0.1	0.55 ± 0.2	0.001
GSH/GSSG Ratio	25.5 ± 8.9	8.6 ± 3.5	0.001

ASD children demonstrate a 22% reduction in plasma cysteine

A Clinical Evaluation of Plasma Cysteine and Plasma Sulfate Concentrations Among Children with Autistic Spectrum Disorders

J Bradstreet, D Geier, J Kartzinel & M Geier,
presented DAN Conference Oct 2003

Type of Measurement	Controls Mean Concentration (mg/dL) [population size]	Cases Mean Concentration (mg/dL) [population size]	Percent Difference	p-value
Plasma Cysteine	3.50 ∀ 0.20 [N=41]	2.76 ∀ 0.45 [N=27]	21%	$P < 0.0001$
Plasma Sulfate	5.05 ∀ 0.125 [N=52]	4.50 ∀ 0.55 [N =19]	11%	$P < 0.0006$

Initial sequencing and analysis of the human genome

International Human Genome Sequencing Consortium*

* *A partial list of authors appears on the opposite page. Affiliations are listed at the end of the paper.*

The human genome holds an extraordinary trove of information about human development, physiology, medicine and evolution. Here we report the results of an international collaboration to produce and make freely available a draft sequence of the human genome. We also present an initial analysis of the data, describing some of the insights that can be gleaned from the sequence.

NATURE | VOL 409 | 15 FEBRUARY 2001 | www.nature.com

- The mutation rate is about twice as high in male as in female meiosis, showing that most mutation occurs in males.

- More than 1.4 million single nucleotide polymorphisms (SNPs) in the human genome have been identified. This collection should allow the initiation of genome-wide linkage disequilibrium mapping of the genes in the human population.

The Effects of Folic Acid Supplementation on Plasma Total Homocysteine Are Modulated by Multivitamin Use and Methylenetetrahydrofolate Reductase Genotypes

M.R. Malinow; et al Arterioscler Thromb Vasc Biol. 1997 Jun;17(6):1157-62.

- Kang et al reported the presence of a common homozygous thermolabile form of MTHFR in 5% of white controls and in 17% of CHD patients.
- The frequency of the homozygous form (T/T) of this polymorphism 12% to 15% in populations of European, Middle Eastern, and Japanese origin.
- The frequency of homozygotes for the T677 allele in 60 Dutch patients with arterial occlusive diseases was 15%, compared with 5.2% in 111 control subjects.
- T677 homozygotes were more prevalent in CHD patients than in non-CHD subjects (12.1% versus 7.8%, respectively).

Single Nucleotide Polymorphisms in ASD Children

- Boris & Goldblatt find 369 of 413(89.3%) were positive for at least one SNP in the MTHFR
- No differences between ASD and ADHD occurrence
- James finds significant MTHFR 677 C→T /1298 A→C polymorphism and Glutathione-S-Transferase T1 null and GST M1/GST T1 null
- ICDRC finds 14 of 15 have at least one MTHFR 677 C→T /1298 A→C polymorphism
- MTHFR and the other Methionine transsulfuration polymorphisms would predict a large cohort of Americans at risk for mercury vulnerability.

Molecular Psychiatry (2004), 1–13
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www.nature.com/mp

IMMEDIATE COMMUNICATION

Activation of methionine synthase by insulin-like growth factor-1 and dopamine: a target for neurodevelopmental toxins and thimerosal

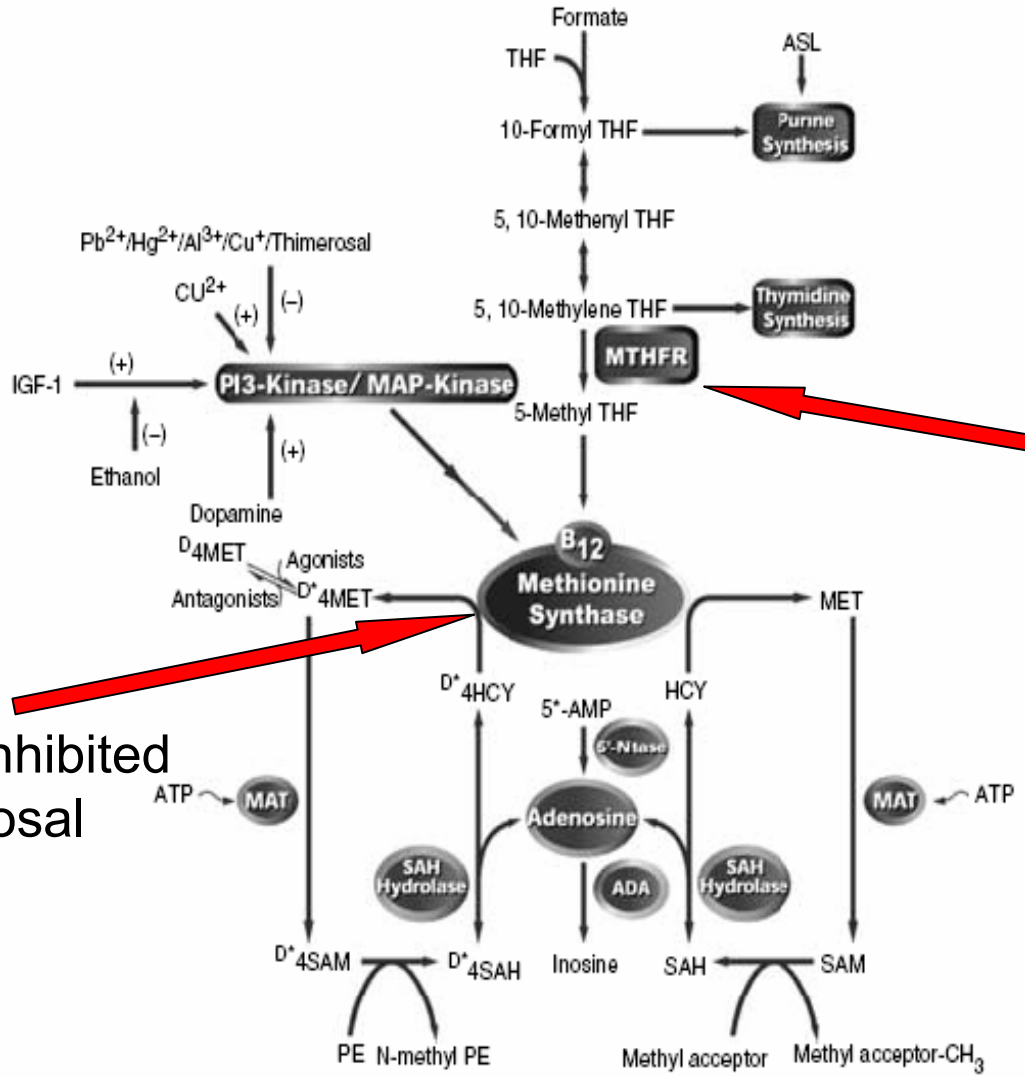
M Waly[1], H Olteanu[2], R Banerjee[2], S-W Choi[3], JB Mason[3], BS Parker[4], S Sukumar[4], S Shim[1], A Sharma[1], JM Benzecry[1], V-A Power-Charnitsky[1] and RC Deth[1]

[1]*Department of Pharmaceutical Sciences, Northeastern University, Boston, MA 02115, USA;* [2]*Biochemistry Department, University of Nebraska, Lincoln, NE 68588, USA;* [3]*Vitamin Metabolism Laboratory, USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA 02111, USA;* [4]*Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins, Baltimore, MD 21231, USA*

A single thimerosal-containing vaccination p roduces acute ethylmercury blood levels of 10–30 nM,[64] and blood samples in 2-month-old infants, obtained 3–20 days after vaccination, contain 3.8–20.6 nM ethylmercury.[65] Our studies therefore indicate the potential for thimerosal to cause adverse effects on MS activity at concentrations well below the levels produced by individual thimerosal-containing vaccines.

Those children with MTHFR or MS or MTR(R) SNP would be most vulnerable

Our studies also provide evidence that ethanol, heavy metals and the vaccine preservative thimerosal potently interfere with MS activation and impair folate-dependent methylation. Since each of these agents has been linked to developmental disorders, our findings suggest that impaired methylation, particularly impaired DNA methylation in response to growth factors, may be an important molecular mechanism leading to developmental disorders.



Most Common SNP Restriction In both Methylation & Sulfation

Severely inhibited by Thimerosal

Answer to the Mercury – Methionine Transsulfuration Question

Yes, there is a definable genomic and biochemical abnormality in ASD children which would make them potentially more vulnerable to mercury exposure.

MMR Epidemiology

Did DeStefano et al ask the right question?

I don’t think so.

Age at First Measles-Mumps-Rubella Vaccination in Children With Autism and School-Matched Control Subjects: A Population-Based Study in Metropolitan Atlanta

Frank DeStefano, MD, MPH*; Tanya Karapurkar Bhasin, MPH‡; William W. Thompson, PhD*; Marshalyn Yeargin-Allsopp, MD§; and Coleen Boyle, PhD§

PEDIATRICS Vol. 113 No. 2 February 2004

"The assumption implicit in this exposure comparison is that if the MMR vaccine increases the risk of autism, which usually develops before 24 months of age, then children who are vaccinated at younger ages would have a higher risk of developing autism."

Adverse Drug React. Toxicol. Rev. 2001, **20(3)** 160–163 © Oxford University Press

The natural history of autistic syndrome in British children exposed to MMR

Walter O. Spitzer[1*] MD MPH FRCPC, Kenneth J. Aitken[2] MA(Hon) MPhil PhD, Sophie Dell'Aniello[3] MSc and M. Williams L. Davis[4] MB B Chir CFPC FCPC

Department of Epidemiology and Biostatistics, Faculty of Medicine, McGill University, Montreal, Quebec, Canada, [2]Independent Consultant Child Clinical Neuropsychologist, K. Aitken Consultancy, Edinburgh, Scotland, [3]Division of Clinical Epidemiology, McGill University Health Centre, Royal Victoria Hospital, Montreal, Quebec, Canada and [4]Department of Family Medicine, Faculty of Medicine, McGill University, Montreal, Quebec, Canada

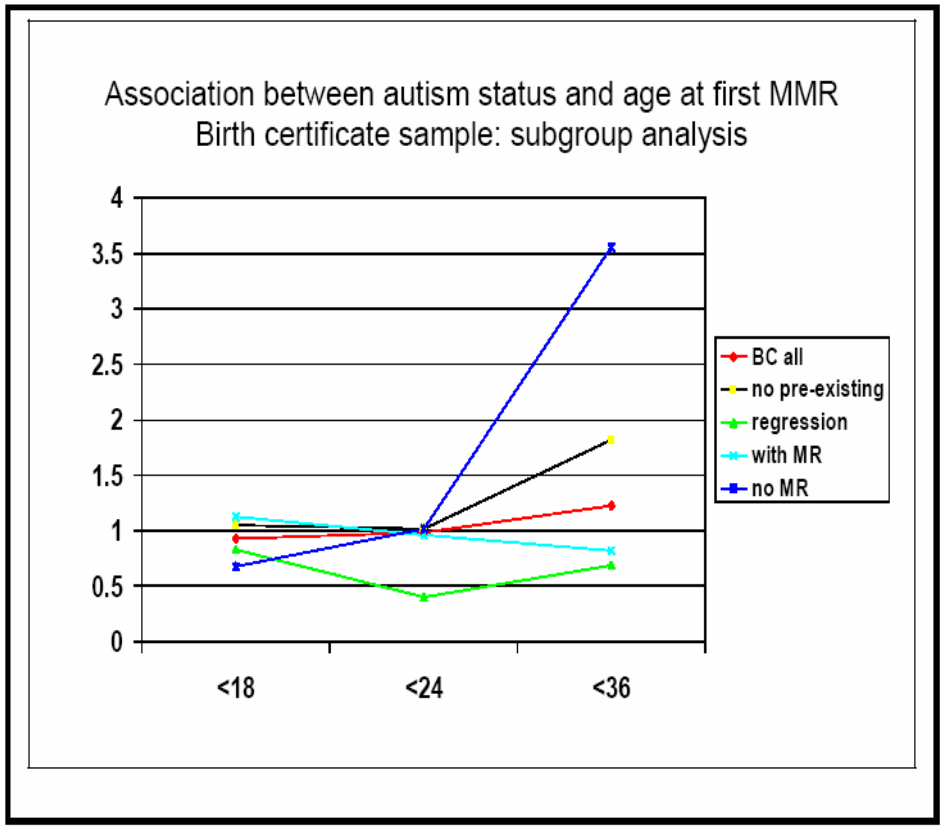
Table 1. Of the eligible children, 294 (80%) were male. The mean age at definitive diagnosis was 4.4 years with a range of 1.6 to 13.5 years. For 27

DeStefano et al

Conclusions.

Similar proportions of case and control children were vaccinated by the recommended age or shortly after (ie, before 18 months) and before the age by which atypical development is usually recognized in children with autism (ie, 24 months). Vaccination before 36 months was more common among case children than control children, especially among children 3 to 5 years of age, *likely reflecting immunization requirements for enrollment in early intervention programs*.

When one looks at the group with autism without mental retardation, the increasing risk is quite striking. This is shown for both the total sample and the birth certificate sample as in the next chart.



Data are presented as Odds Ratios comparing Birth Certificate cases and controls, those with no pre-existing medical problems, "regression" as determined by retrospective record review, with mental retardation and without mental retardation.

Without any qualification whatsoever, DeStephano and colleagues seek to explain this observation by saying that it is likely to reflect the vaccine entry requirement into special education. If that were the case it should be seen in the autistic groups *with* mental retardation and clearly it is not.

GASTROINTESTINAL CO-MORBIDITY IN CHILDREN WITH AUTISTIC SPECTRUM DISORDER AND RE-EXPOSURE TO MEASLES-CONTAINING VACCINES

Andrew J Wakefield MB BS FRCS FRCPath*¶, Iain RJ Collins BSc*, Andrew Anthony MBBS PhD MRCPath*‡

In Submission

Results

- Re-exposed scored significantly higher than once-exposed for: 2^{o} physical symptoms ($p<0.0001$), including incontinence ($p=0.009$); presence of severe ileal lymphoid hyperplasia ($p=0.002$); acute inflammation including number of children affected ($p<0.05$), proportion of biopsies affected ($p<0.001$), greater severity ($p<0.05$); and epithelial damage ($p<0.05$).

If MMR is associated with autistic regression/encephalopathy and inflammatory bowel symptoms, can we find the virus in the gut, lymphocytes, and the brain/CSF?

Potential viral pathogenic mechanism for new variant inflammatory bowel disease

V Uhlmann*, C M Martin*, O Sheils, L Pilkington, I Silva, A Killalea, S B Murch, A J Wakefield, J J O'Leary

J Clin Pathol: Mol Pathol 2002;55:0–6

See end of article for authors' affiliations

Correspondence to: Professor J J O'Leary, Department of Pathology, Coombe Women's Hospital, Dublin 8, Ireland; joleary@coombe.ie

Accepted for publication 8 November 2001

Aims: A new form of inflammatory bowel disease (ileocolonic lymphonodular hyperplasia) has been described in a cohort of children with developmental disorder. This study investigates the presence of persistent measles virus in the intestinal tissue of these patients (new variant inflammatory bowel disease) and a series of controls by molecular analysis.

Methods: Formalin fixed, paraffin wax embedded and fresh frozen biopsies from the terminal ileum were examined from affected children and histological normal controls. The measles virus Fusion (F) and Haemagglutinin (H) genes were detected by TaqMan reverse transcription polymerase chain reaction (RT-PCR) and the Nucleocapsid (N) gene by RT in situ PCR. Localisation of the mRNA signal was performed using a specific follicular dendritic cell antibody.

Results: Seventy five of 91 patients with a histologically confirmed diagnosis of ileal lymphonodular hyperplasia and enterocolitis were positive for measles virus in their intestinal tissue compared with five of 70 control patients. Measles virus was identified within the follicular dendritic cells and some lymphocytes in foci of reactive follicular hyperplasia. The copy number of measles virus ranged from one to 300 000 copies/ng total RNA.

Conclusions: The data confirm an association between the presence of measles virus and gut pathology in children with developmental disorder.

Development of an 'allelic discrimination' type assay to differentiate between the strain origins of measles virus detected in intestinal tissue of children with ileocolonic lymphonodular hyperplasia and concomitant developmental disorder.

O.Sheils, P.Smyth. C Martin. J.J. O'Leary.
Department of Histopathology, Trinity College Dublin, Ireland. Presented July 2002 Royal College of Pathologists

“This pilot study further corroborates our previous findings of an association between the presence of measles virus and gut abnormalities in children with developmental disorder, and indicates the origins of the virus to be vaccine strain.”

Detection of Measles Virus Genomic RNA in Cerebrospinal Fluid in Children with Regressive Autism by TaqMan RT-PCR: A Report of Three Cases.

Bradstreet J.J. M.D[1]. El Dahr J. M.D[2]., O'Leary JJ, MD, DPhil, MSc, BSc, FRCPath, FFPathRCPI[3].,Sheils O. PhD FLMS[3], Anthony A MB.BS, PhD, MRCPath[4]., Wakefield AJ., MB.BS, FRCS, FRCPath[1].

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[4] Department of Histopathology, Royal Free and University College Medical School, London, UK

Accepted: *Journal of American Physicians and Surgeons, Summer 2004.*

Abstract

In light of encephalopathy, presenting as autistic regression closely following MMR vaccination, three children underwent cerebrospinal fluid (CSF) assessments including studies for measles virus (MV). All three children had concomitant onset of gastrointestinal symptoms and had already had MV genomic RNA detected in biopsies of ileal lymphoid nodular hyperplasia (LNH). Presence of MV Fusion (F) gene was examined by TaqMan RT-PCR in cases and control CSF samples, obtained from 3 non-autistic MMR-vaccinated children with indwelling shunts for hydrocephalus. None of the cases or controls had a history of measles exposure, other than MMR vaccination. Serum and CSF samples were also evaluated for antibodies to MV and myelin basic protein (MBP). MV F-gene was present in CSF from all 3 cases, but not in controls; genome copy number ranged from $3.7x10^4$ - $2.42x10^7$ per ng total RNA. Serum anti-MBP antibodies were detected in all children with autistic encephalopathy (AE). Anti-MBP and MV antibodies were detected in the CSF of 2 cases, while the third child had neither anti-MBP, nor MV antibodies detected in his CSF. The findings are consistent with a MV etiology for the regression, and indicate the possibility of a virally driven cerebral pathology in some cases of AE.

From the next paper in our series, Sheils et al.

Abstract

In light of encephalopathy, presenting in children as autistic regression closely following MMR vaccination, affected (ASD) children (n = 28) underwent lumbar puncture and examination of cerebrospinal fluid (CSF) for measles virus (MV) genomic RNA. Presence of MV Fusion (F) gene was examined by TaqMan RT-PCR. Control CSF samples (n = 37) were obtained from children in remission from leukaemia (n = 20), children undergoing shunt insertion for hydrocephalus (n = 3) and young adults with either multiple sclerosis (n = 7) or encephalitis (n = 7). All ASD cases and pediatric controls had received MMR vaccine. MV haemaglutinnin (H) gene allelic discrimination (AD) assay was performed on cases where adequate MV amplicon was obtained. MV F-gene was present in CSF from 19 of 28 (68%) cases and in one of 37 (3%) controls (RR = 25.90; CI 3.96-181.58, $p<0.00001$). Where data were available on CSF (5 cases), AD assay confirmed that the MV H-gene product was consistent with vaccine strain. The findings confirm a highly significant statistical association between the presence of MV RNA in CSF and autistic regression following MMR vaccination.

Digestive Diseases and Sciences, Vol. 45, No. 4 (April 2000), pp. 723–729

Detection and Sequencing of Measles Virus from Peripheral Mononuclear Cells from Patients with Inflammatory Bowel Disease and Autism

HISASHI KAWASHIMA, MD, TAKAYUKI MORI, PhD, YASUYO KASHIWAGI, MD, KOUJI TAKEKUMA, MD, AKINORI HOSHIKA, MD, and ANDREW WAKEFIELD, MD

"One of eight patients with Crohn disease, one of three patients with ulcerative colitis, and three of nine children with autism, were positive. Controls were all negative. The sequences obtained from the patients with Crohn's disease shared the characteristics with wild-strain virus. **The sequences obtained from the patients with ulcerative colitis and children with autism were consistent with being vaccine strains**. The results were concordant with the exposure history of the patients. Persistence of measles virus was confirmed in PBMC in some patients with chronic intestinal inflammation."

This pattern of multi-site detection is significant for active replication

Prolonged Measles Virus Shedding in Human Immunodeficiency Virus–Infected Children, Detected by Reverse Transcriptase–Polymerase Chain Reaction

Sallie R. Permar,[1] William J. Moss,[1] Judith J. Ryon,[1] Mwaka Monze,[3] Felicity Cutts,[4] Thomas C. Quinn,[2] and Diane E. Griffin[1]

[1]*W. Harry Feinstone Department of Molecular Microbiology and Immunology, School of Hygiene and Public Health, and* [2]*Department of Medicine, School of Medicine, Johns Hopkins University, Baltimore, Maryland;* [3]*Virology Laboratory, University Teaching Hospital, Lusaka, Zambia;* [4]*Department of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom*

The Journal of Infectious Diseases 2001;183:532–8

"…we believe the presence of measles virus RNA represents continued measles virus replication, not simply the persistence of measles virus RNA after cessation of viral replication. This is supported by the detection of measles virus RNA from multiple clinical sites."

Answer to the MMR Question

Yes, MV RNA is present in the Bowel, Lymphocytes and CSF of ASD children and when AD is possible it is always of vaccine origin.

Conclusions

While there is a great deal of additional research to be accomplished, the data are now sufficient and provide evidence of significant vaccine adverse events in a subgroup of at-risk children. There are additional data supporting a role for mercury from all sources in this population, requiring mercury reduction and screening to be advised for these children. A likely genomic – biochemical link has been discovered within the methionine transsulfuration and methylation pathways.