

A DEVELOPMENTAL TOXICOLOGISTS VIEW

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TALKING POINTS

MERCURY AS A NEUROTOXICANT-

INORGANIC/ ORGANIC METHYL/ETHYL-THIMEROSAL/DOSE

- WHY WE NEED TO STUDY THE DEVELOPING HUMAN –
DIFFICULTY IN EXTRAPOLATION OF ANIMAL DATA -

TALKING POINTS

- IS THE DATA REGARDING THE INFANT AND CHILD ADEQUATE TO CONCLUDE THAT THIMEROSAL HAD AN EFFECT? CDC STUDIES, ETC
- IS THIS DATA RELEVANT NOW THE VACCINES DO NOT CONTAIN THIMEROSAL

TALKING POINTS

- STUDIES UNDERWAY OR BEING PROPOSED-US GOVERNMENT, UNIVERSITIES AND PARENT GROUPS – BY THEMSELVES OR TOGETHER
- CURRENT THERAPEUTIC TRIALS BASED ON HEAVY METALS-

CONCLUSIONS

MERCURY AS A NEUROTOXICANT (ANIMAL&HUMAN DATA)

- BIOLOGIC PLAUSIBILITY-MULTIPLE MOAs
, KEYS TO UNLOCKING THE BRAIN
- INORGANIC/ ORGANIC
- METHYL/ETHYL-?
- THIMEROSAL DOSE RESPONSE?
- PREGNANCY & DEVELOPMENT

WHY WE NEED TO STUDY THE DEVELOPING HUMAN

- EXTRAPOLATION OF ANIMAL DATA TO HUMAN –MOST DIFFICULT FOR DEVELOPMENT- THALIDOMIDE, DES
- WINDOWS OF SUSCEPTIBILITY OF THE DEVELOPING HUMAN – THALIDOMIDE/PCBS
- OF ANY TIME DURING LIFE, THE DEVELOPING HUMAN IS THE MOST SENSITIVE TO MERCURY – IRAQ/MINAMATA BAY
- CO-CONTAMINANTS- A DEVELOPING HUMAN IS EXPOSED TO HUNDREDS OF ENVIRONMENTAL SOME OF WHICH ARE NEUROTOXICANTS, ADDICTIVE/SYNERGISTIC/CLUST

IS THIS DATA RELEVANT NOW THE VACCINES DO NOT CONTAIN THIMEROSAL

- RELEVANT TO OTHER COUNTRIES
- UNDERSTANDING OF BRAIN DEVELOPMENT –
PARENTS/SCIENTISTS
RELEVANCE TO MERCURY IN THE ENVIRONMENT
AND OTHER ENVIRONMENTAL
CONTAMINANTS
GENE – ENVIRONMENT INTERACTION

STUDIES UNDERWAY OR BEING PROPOSED

- US GOVERNMENT - ATSDR
- UNIVERSITIES -CDC
- BY THEMSELVES OR **TOGETHER**

CURRENT THERAPEUTIC TRIALS BASED ON HEAVY METALS - CHELATION THERAPY

- ORPHAN DRUGS – ALL DRUGS MUST BE STUDIED IN CHILDREN BEFORE USED AS THERAPY-
- THEORETICAL BASED TREATMENTS – XRAYS FOR ENLARGED THYMUS , ANTIBIOTICS FOR PREMATURES. SOME HAVE BEEN SHOWN TO BE BENEFICIAL
- NEED TO STUDY SUCCIMER AND ALL THERAPEUTICS
- WHAT WE KNOW OF SUCCIMER THERAPY AND FDA LABELED INDICATIONS IN CHILDREN
- THE EFFECT OF CHELATION THERAPY WITH SUCCIMER ON NEUROPSYCHOLOGICAL DEVELOPMENT IN CHILDREN EXPOSED TO LEAD , NEJM: VOLUME 344, 1421, 2001

THE EFFECT OF CHELATION THERAPY WITH SUCCIMER ON NEUROPSYCHOLOGICAL DEVELOPMENT IN CHILDREN EXPOSED TO LEAD

- 780 CHILDREN
- BLOOD LEAD LEVELS OF 20-44 MICROGRAM/dl
- RANDOMIZED PLACEBO CONTROLLED TRIAL OF UP TO THREE 26 DAY TREATMENT COURSE OF SUCCIMER 1050MG/M SQ. FOR FIRST 7 DAYS AND THEN 700 MG/M SQ THEREAFTER
- STUDY PARAMETERS WERE LEAD LEVELS, IQ, BEHAVIOR, DEVELOPMENTAL NEUROPSYCHOLOGICAL FUNCTION, AND GROWTH

THE EFFECT OF CHELATION THERAPY WITH SUCCIMER ON NEUROPSYCHOLOGICAL DEVELOPMENT IN CHILDREN EXPOSED TO LEAD RESULTS

SUCCIMER

- LOWERED LEAD LEVELS BY 3.7 – 5.3
MICROGRAM/DL
- NO IMPROVEMENT ON COGNITION, BEHAVIOR,
OR NEUROPSYCHOLOGICAL FUNCTION
- DECREASED GROWTH BY 0.25CM/12 MONTHS
AND 0.35CM OVER 34 MONTHS
- INCREASED INCIDENCE OF HOSPITALIZATION
FOR TRAUMA (0 VS 5)

CONCLUSIONS

- MERCURY IS A KNOWN NEUROTOXICANT
- CURRENTLY THERE IS INCONCLUSIVE DATA IN CHILDREN TO SUPPORT THIMERASOL CAUSED NEURODEVELOPMENTAL DELAY INCLUDING AUTISM
- BUT THE WEIGHT OF EVIDENCE IS COMPELLING THAT THIS QUESTION HAS TO BE AND STUDIES **MUST BE PERFORMED** TO CONCLUSIVELY PROVE OF DISPROVE THIS THEORY, INCLUDING AUTISM.
- RESEARCH OF MOAs, PK/PD, CO-CONTAMINANTS, GENETIC SUSCEPTIBILITY MUST BE PERFORMED AS EXPEDITIOUSLY AND CAREFULLY AS