

Autism Spectrum Disorders, CFIDS and ADD/ADHD: A Medical Epidemic and The Neuro-Immune Connection NIDS

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Logical: (Merriam – Webster Dictionary)

- Main Entry: **log· i· cal**
Pronunciation: 'lä-ji-k&l
Function: *adjective*
Date: 15th century
1 a (1) : of, relating to, involving, or **being in accordance with logic** (2) : skilled in logic
b : formally true or valid : **ANALYTIC**, **DEDUCTIVE**
2 : **capable of reasoning or of using reason in an orderly cogent fashion**
 - *<a logical thinker>*



The Human Brain - a “Black Box”

Could “define” patterns of dysfunction

Very little understanding

- Structural
- Congenital / developmental malformation
 - Chromosome abnormalities
- Vascular malformation – Aneurysm, etc.
- Injury
- Neoplasm - Tumor
- Metabolic
- Infectious
 - *“peculiar” disposition of Herpes viruses for the temporal lobe*
- Immunological
 - evolution of information s/p HIV



1980's

Changes in disease patterns

becoming **obvious** in clinical practice

- Early discussion of a **new entity in adults** causing chronic tiredness, cognitive dysfunction, combination of muscle, joint, autonomic, endocrine symptoms
- **Children** being “labeled” **atypical** ADD, quiet ADD, “mixed” ADD,
 - ADHD with Hyperactivity
 - ADHD without Hyperactivity
- Autism > PDD (“**atypical**” autism)



1990's

- Increased discussions of **cognitive dysfunction, school difficulties** for children
 - ADHD variants
 - LD
 - **Autism / PDD** – beginning to “surface” in preschools
- Dr. Byron Hyde
 - **“Emerging epidemic”** in children
 - School phobia, cognitive dysfunction, unexplained physical dysfunction's, expanding teenage drug addiction, teenage suicide



Now

An enlarging group of children and adults

- Do not fit "classic" disease profiles
- Origins seems linked to the concept of a Neuro-Immune-Dysregulatory phenomenon
- *Whether due to / caused by ???*
 - viral
 - retro-viral
 - genetic disposition (very probable)
 - "environmental" changes (probable)
 - Ozone layer
 - Other . . .



Attention Deficits Now Represent the MOST COMMON Developmental Problem in School Age Children

- **Once thought - affected school-aged children**
 - **"outgrew" at puberty**
 - **Now** recognized that 50% to 70% of children with attention deficits diagnosed between 6 and 12 years of age **continue** to manifest troublesome symptoms through middle adolescence.
- **The term ADHD is now routinely applied to adults and children.**
- **Increasing number** of ADHD children now being called **"Tourette's"** syndrome



IS "Autism" *REALLY* epidemic?

- NIH reports incidence of **15-20/10,000**
 - "others" estimate **20-40/10,000**
 - *Real incidence may be 1 - 3% (or more)*
- ?? Easier criteria to meet PDD
 - Were these children '*missed in the past*'?
- **Increased incidence (in mothers) of :**
 - Miscarriages
 - Infertility
 - Preeclampsia
 - Bleeding during pregnancy



SCIENCE Says:

- An epidemic can NOT be due to a developmental or genetic disorder
 - **SCIENTIFICALLY IMPOSSIBLE!!!**
- ONE MUST have a *disease* process at work
- The **ONLY** possible **CAUSE** for this type of disorder / dysfunction has become **immune** and / or **viral** in origin

PAST HISTORY (?? NIDS)

- EPIDEMICS - DIFFERENT NAMES

It is possible this dates back to at least the 1500's or longer

1529 - Holland -

1680's - described by Thomas Siddenham

1856 - EPIDEMIC ICELAND

1862 - TROUSSEAU -

1865 - ICELAND - Larger epidemic

1934 - LOS ANGELES

1955 - Epidemics in FRANCE,
CANADA, U.S., & ENGLAND

1965 - TEXAS

PAST HISTORY (?? NIDS)

- EPIDEMICS - DIFFERENT

NAMES

(cont.)

FEB. 1983 (END OF SUMMER)

- NEW ZEALAND - "TAPANOUI flu"

AUG/SEPT 1983 - CANADA

1984 - JAPAN - Low NK Syndrome

- General dullness

- **No Known Bacterial or Viral Agent**

1984 - AUSTRALIA - NEW ZEALAND

AUG/SEPT 1984 - LAKE TAHOE

" " - PHILADELPHIA (orchestra)

" " - CANADA -

1984 & 1985 - ENGLAND

1985 Lyndonville N.Y. outbreak

1991 - ?? Gulf War Syndrome



Presently:

- **EXPLOSION** of auto-immune, immune mediated disorders adults and children
 - Diabetes
 - **NOW** known to be **immune and viral mediated**
 - Allergies, migraines, sinus infections
 - Adults and children
 - IBS, Crohn's Disease, Ulcerative Collitis
 - Rheumatoid disease, FMS
 - Auto-immune / viral links to Alzheimer's, Parkinson's, MS, and other adult neurological disorders
- **"Neuro-Immune" has become the research pathway of the future**



Immune Abnormalities Reported:

- **Changes in T cells (& T cell function)**
 - CD4 / CD8 - increased / decreased
 - **Low** (and elevated) *NK cells*
 - **B cells** - increased / decreased
 - Increased DR+ T cells
 - Increased Interleukin 2 Receptors
- **Decreased Mitogen response**
 - Altered Delayed hypersensitivity
- **Antibodies** to serotonin receptors
- **Antibodies** to neuro elements



Past associations ("Autism") include:

- Tuberous Sclerosis (genetic)
- PKU (metabolic)
- Congenital Rubella Syndrome (viral)
- Down Syndrome
(genetic - chromosome 21)
- Other . . .



With the Relatively New Thinking That Autism Has Medical Origins Have Come Several Theories

- Some doctors still believe autism is a result of a **metabolic, enzyme, or genetic defect**
 - Although a **few children (??)** may suffer a built-in genetic or functional defect present since early gestation, our **clinical observation, and our rCBF findings for Autism, do not support these theories for the majority of children afflicted**
- These theories do not fit or begin to explain the large increase in the number of children diagnosed with “autism” / “Autistic Spectrum Disorder” today

Mercury –

A “*New Disease*” Model ??

- Some feel Autism has never been described as a ***mercury-induced disease***, because the disorder must arise from a **mode of mercury administration which has not been studied before**
 - But Mercury (Hg) - symptoms, methods of detection, negative effects, etc. **HAS BEEN STUDIED for MANY, MANY years**
- **NO support** in past literature:
 - Celiac Disease = Autism – **NOT**
 - Mercury = CFS, Autism, etc. - **NOT**

Technical Report: Mercury in the Environment: Implications for

Pediatricians Lynn R. Goldman, MD, MPH, Michael W. Shannon, MD, MPH, and the Committee on Environmental Health - PEDIATRICS Vol. 108 No. 1 July 2001, pp. 197-205

- In **June 1999**, the FDA notified the American Academy of Pediatrics
 - some infants given routine immunizations **could exceed 1 of 3 federal guidelines for daily exposure to mercury** because of the presence of **thimerosal**, a mercury-containing preservative, in some vaccines.
- Currently, **all vaccines** in the recommended vaccination schedule **do not contain thimerosal** as a preservative
- **Everyone** is exposed to **small amounts** of **mercury**



JOINT STATEMENT OF THE AMERICAN ACADEMY OF
FAMILY PHYSICIANS (AAFP), THE AMERICAN
ACADEMY OF PEDIATRICS (AAP), THE ADVISORY
COMMITTEE ON IMMUNIZATION PRACTICES (ACIP),
and THE UNITED STATES PUBLIC HEALTH SERVICE
(PHS) <http://www.aap.org/policy/JOINTthim.html>

- **In 1999, family physicians, pediatricians, federal health officials, and vaccine manufacturers stated that because any potential risk from mercury is of concern, and the **elimination** of exposure to mercury in the form of **thimerosal** from vaccines is **feasible**, thimerosal should be removed from vaccines as soon as possible.**
 - *However, there remains no convincing evidence of harm caused by low levels of thimerosal in vaccines.*



Vaccination Theory ?

- In other “proposed” disease models (MS, CFS/CFIDS Fibromyalgia) exposures such as maternal Hg exposures (e.g., from vaccinations, thimerosal-containing RhoGam injections during pregnancy, or dental fillings) **has been ruled out in the literature.**
- **Vaccines** may be **possible “triggers”** but they are **NOT the cause** of this disorder / epidemic.
 - **There Is Too Much Data Over Decades Supporting the Lack of “Causation”**
 - *But, action as a **potential “trigger”** is open to scientific investigation (in some cases)*



PATHOPHYSIOLOGY

"Autism" HAS BEEN associated with a variety of disorders affecting the central nervous system
(i.e. **encephalitis, encephalopathy**)

Three children - autistic features resolved after clinical recovery (1981, DeLong, Bean, and Brown)

- One patient had high serum **herpes simplex** titers
- CT scan - lesion - **Temporal lobes**

4-year old girl - a “typical” autistic syndrome after an attack of **herpes simplex** encephalitis (1986, Gillberg)

- CT - **Temporal lobes**
- Some involvement (lower parts) parietal lobes



PATHOPHYSIOLOGY

(cont.)

A syndrome similar to autism in adult Psychiatry

(1975 Marlowe, W. B., et. al. Cortex)

- **after temporal lobe damage**

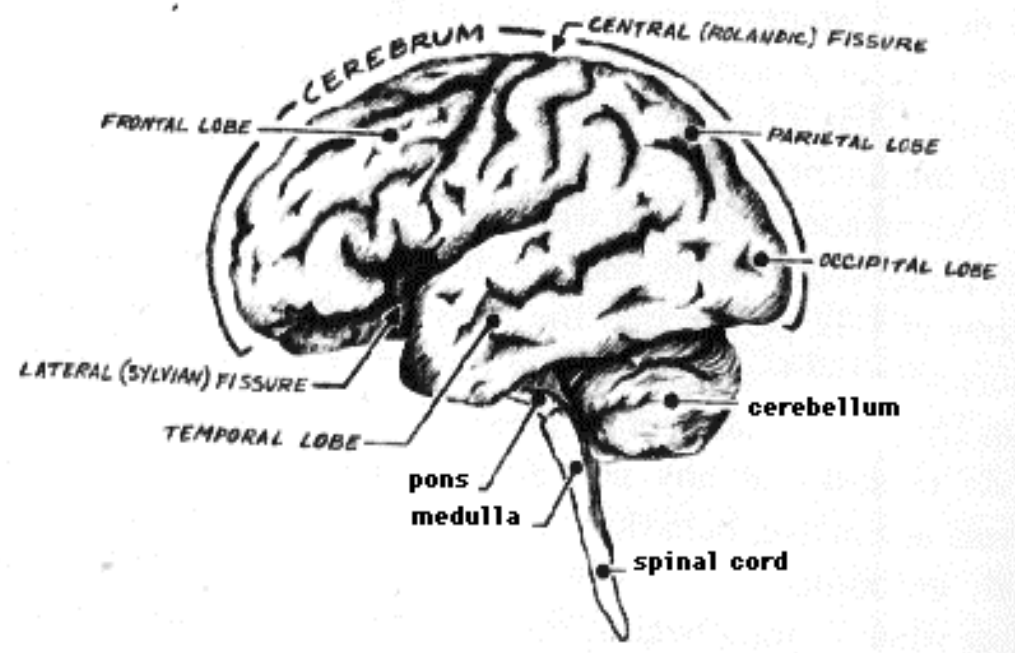
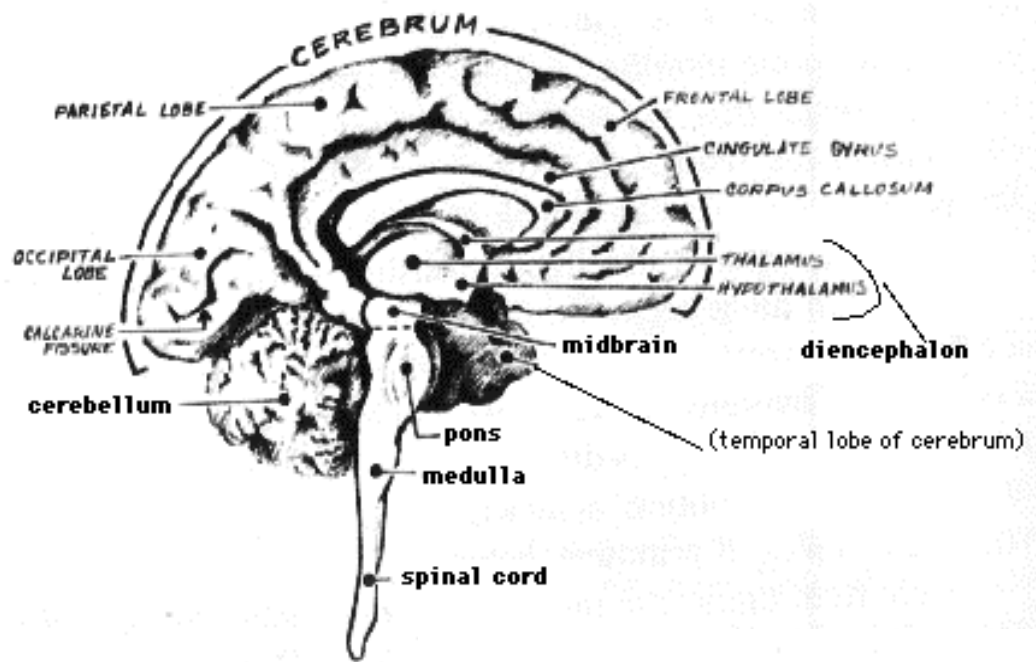
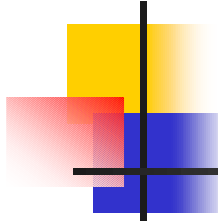
14-year old boy - **herpes simplex** encephalitis

(1989, Greer, M K, Lyons-Crews, M., Mauldin,
L.B. & Brown, F. R. III.)

- significant language, social, and memory deficits

- cognitive and behavioral deficits

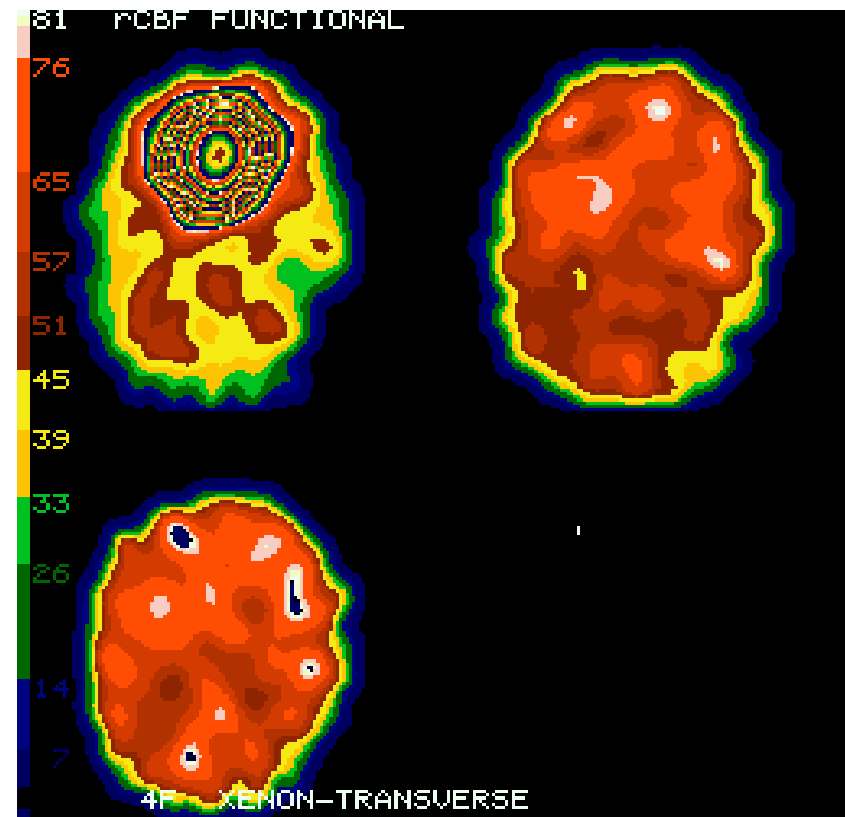
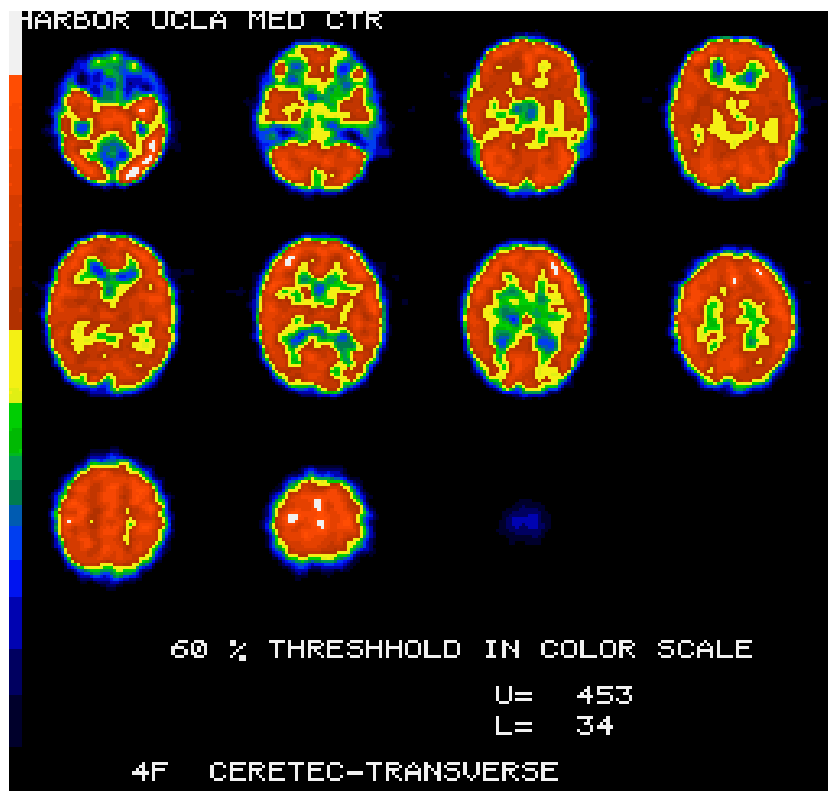
- **temporal lobe damage**



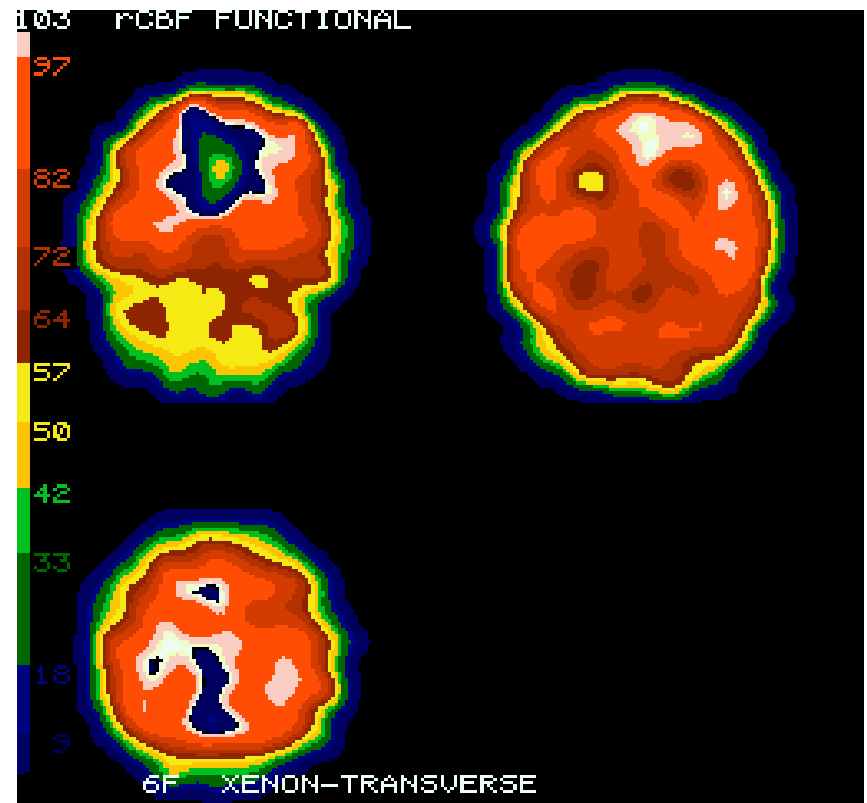
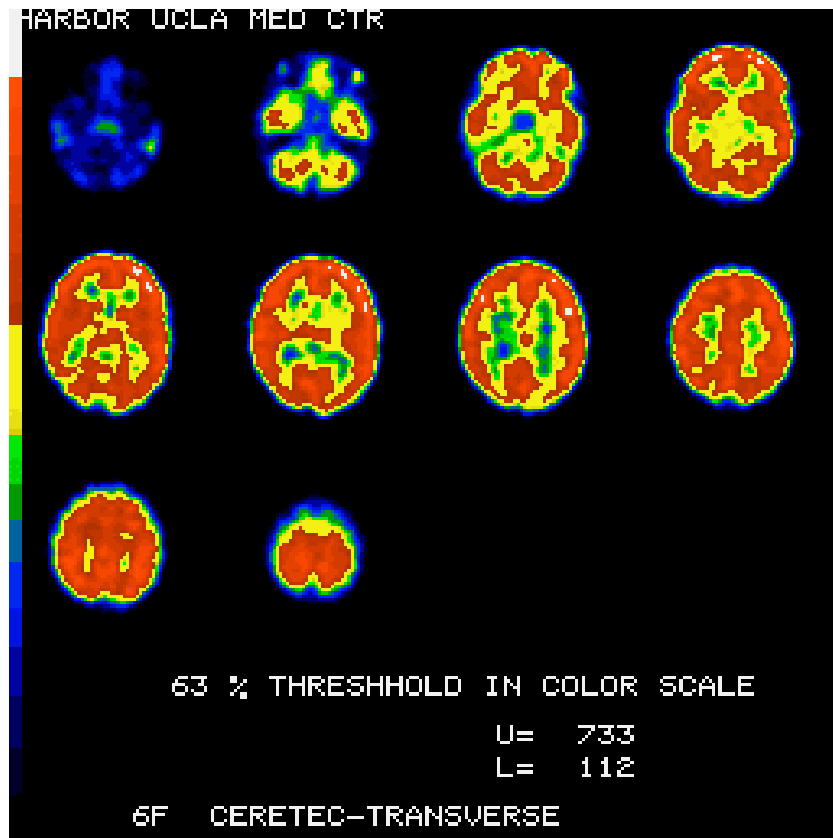


Temporal Lobe

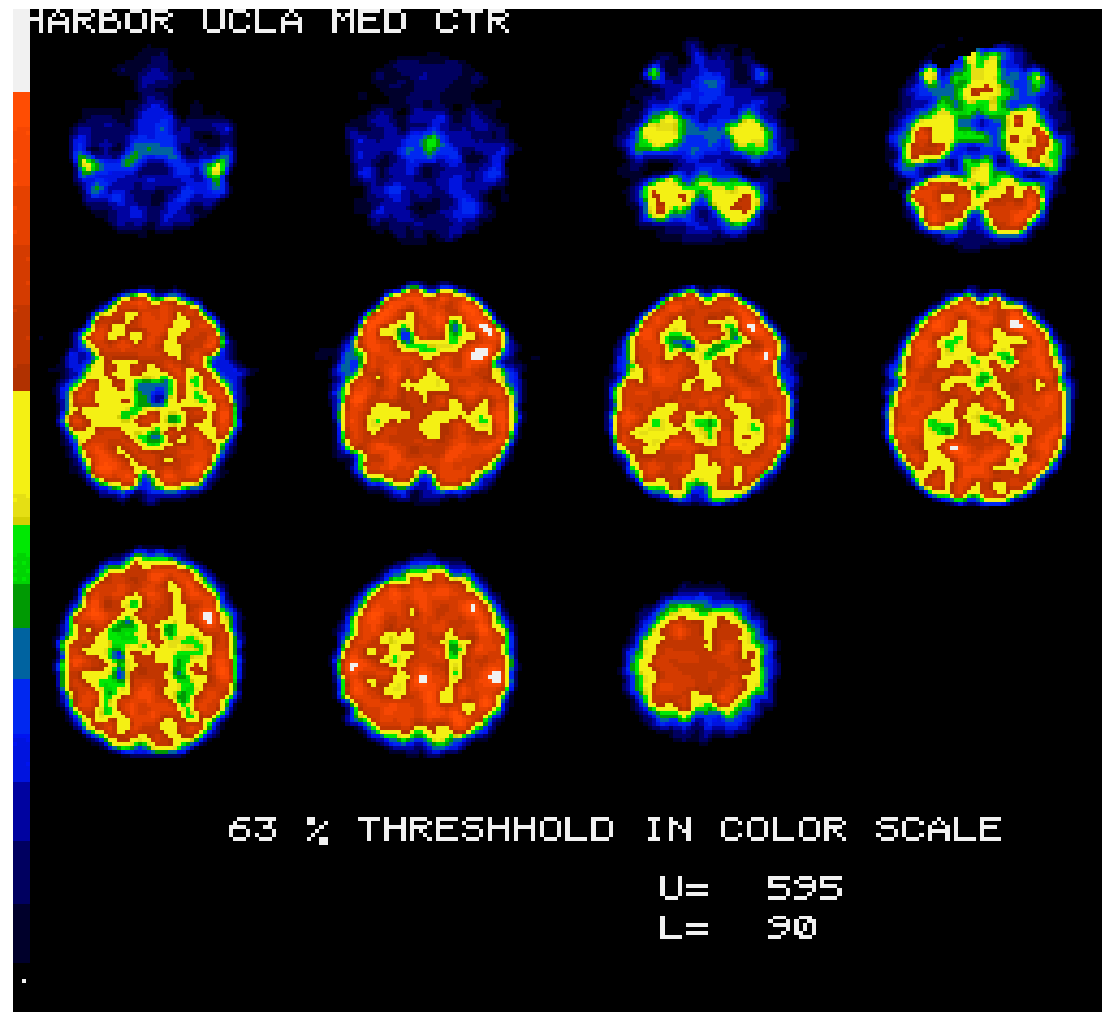
4 yr. old female "Autistic"



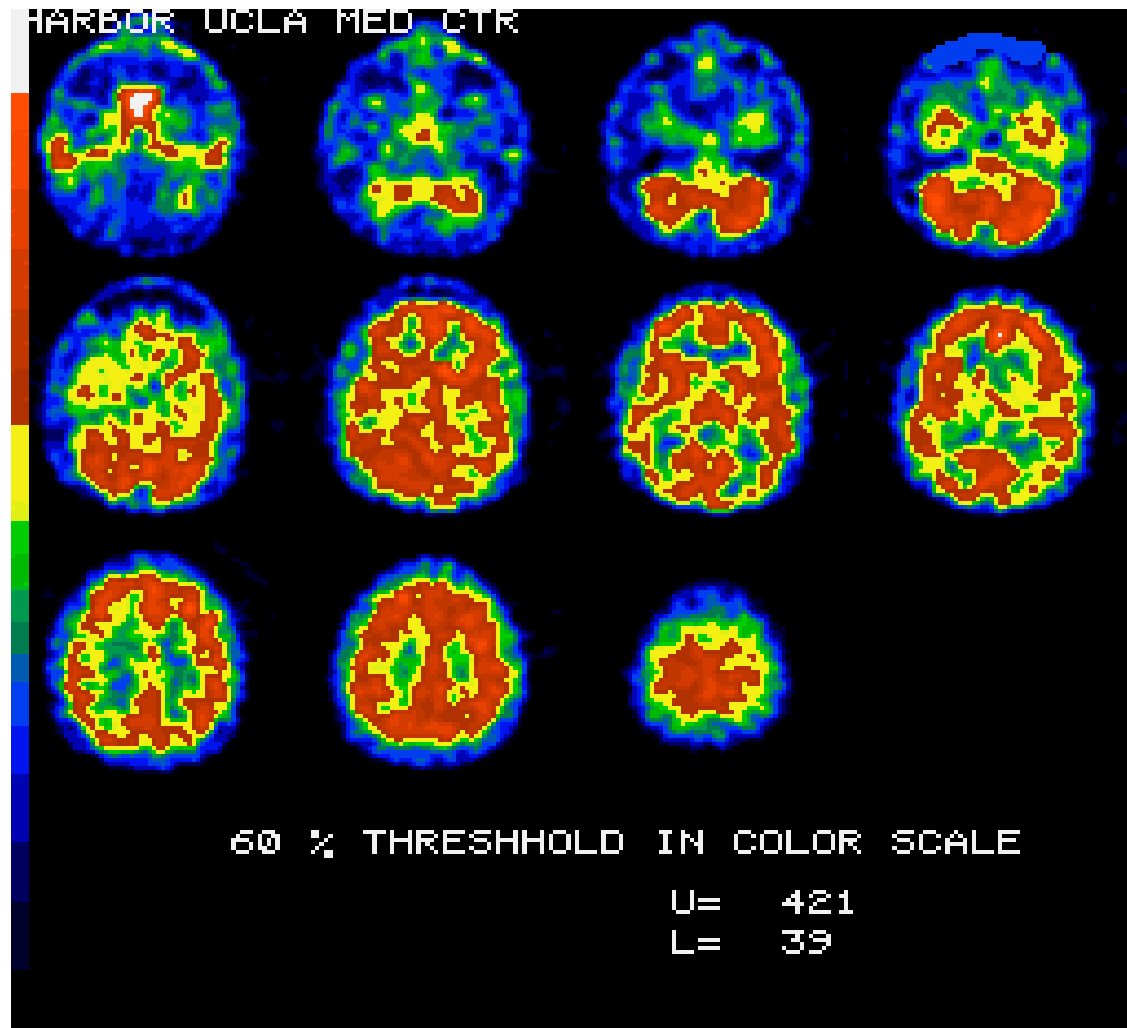
6 yr. old "Autistic" female



9 yr. Old Girl - quiet-ADD / NIDS



18 yr. Old Boy - ADHD / NIDS





What WE Are SEEING

- **Abnormal** NeuroSpect Scans
 - **Hypoperfusion - Temporal Lobes (primary dysfunction)**
 - **Hypoperfusion - Occipital/Parietal Lobes**
 - **Hypoperfusion - Cerebellum**
 - **Scalloping/Thinning** (in some)
 - Explains **LKS** - abnormal EEG's
- **Normal** MRI's
- **Normal** CAT Scans

FRONTAL AND TEMPORAL LOBE DYSFUNCTION IN AUTISM AND OTHER RELATED DISORDERS: ADHD

AND OCD Michael Goldberg, M.D Ismael Mena, M.D., Bruce Miller, M.D. Clínica Las Condes, Santiago, Chile, Dept of Neurology, UCSF Medical Center. *Alasbimn Journal*1(4):July 1999

- Autism, Pervasive Development Disorder (PDD), Attention Deficit Hyperactive Disorder (ADHD), and Obsessive and Compulsive Disorder (OCD) involve **significant frontal and temporal lobe dysfunction.**
 - This conclusion is based on NeuroSPECT work now in progress on children afflicted with these disorders.
- We have been using NeuroSPECT to image **cerebral abnormalities** of perfusion/function in **Autism, ADHD, OCD, and other neuro-cognitive disorders.**
 - With the increased focus and presentation of children labeled Autistic Syndrome / PDD, has come a greater need to **understand and define the dysfunction** in these children by **objective "functional" quantification, now possible** with new imaging technology such as NeuroSPECT.



FRONTAL AND TEMPORAL LOBE DYSFUNCTION IN AUTISM AND OTHER RELATED DISORDERS: ADHD AND OCD (cont)

- This offers an explanation for the **progressive process** of the autistic syndrome that occurs sometime between 15-24 months of age.
- It is this **immune mediated, abnormal "shut down" of blood flow** in the brain that affect the language and social skills area of the brain and central nervous system function.
- The **dysfunction / lack of blood flow** can eventually lead to **injury of nerve cells**
 - Possible explanation for the abnormal brain waves and the large numbers of autistic syndrome children suddenly being labeled as "Landau-Kleffner."



EEG DETERIORATION:

03/31/95- Impression:

- This is a **normal** sleep EEG with normal activation procedures.

07/20/98 Impression:

- **Abnormal** EEG revealing left hemispheric slowing over the central temporal head regions.

EEG DETERIORATION (Cont.)

- This record is indicative of a focal encephalopathic process or cerebral dysfunction which is greatest over the left temporal head regions.
 - This could correlate with an ongoing focal abnormality or structural lesion.
 - The possibility of a postictal encephalopathy must be considered, as well.
- 08/04/00-08/07/00- Impression: **Abnormal EEG**
rev
 - Left temporal intermittent delta activity.
 - **Multifocal epileptiform discharges** from the left frontotemporal and right temporoparietal head regions.