Neurodevelopmental Disorders Associated with Prenatal Exposure to Alcohol (ND-PAE)

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- Meharry Medical College - 1969, Dr. E. Perry Crump was the Chairman - Dept Pediatrics.
- Dr. Crump taught me that the low-income children of North Nashville had a high prevalence of “mild mental retardation.”
- Dr. Crump and Julius Richmond, M.D. (President’s Johnson’s and Carter’s Surgeon General) went on to form Head Start to address this national problem.
The Critical Role of Self-Regulation

- Neuroscience and behavioral research are converging on the importance of self-regulation for successful development.

- Children who do not develop the capacity to inhibit impulsive behavior, to plan, and to regulate their emotion are at high risk for behavioral and emotional difficulties.

Think about all the liquor stores in the African-American (ghettos) and Native American (reservations) communities all over the country.

The plethora of liquor stores have a determination on the indigenous populations’ health.
Neurodevelopmental Disorders

- Autism and Autism Spectrum Disorders
- ADHD
- Intellectual Disability
- Specific Learning Disorders
- Communication Disorders
- Motor Disorders
- Newly defined DSM-5 ND - PAE
Prevalence of Drinking while Pregnant in the US

- 13% knowingly drink
- 1% drink heavily
- 3-4% binge drink (SAMHSA)
- 12% of pregnant women consume 5 or more drinks per month
- 50% of pregnancies are unplanned

Study in a 160,000 Midwestern community (Median income $51,800, with 11% below poverty) surveyed 70% of 2,033 1st graders.

They found between 2.4 to 4.8% had FASD.
Patients seen at Jackson Park Hospital’s Family Medicine Clinic serving 143,000
Median income $33,809 & 95% Public Assistance for Medical Care

| Total patients with Neurodevelopmental Disorders | 297 (49%) |
| Total Patients without Neurodevelopmental Disorders | 314 (51%) |
| Total | 611 (100%) |

This is a rate of 338/1,000!!!!
Prevalence of Fetal Alcohol Spectrum Disorders – U.S.

Chasnoff, et al

- 547 youth referred for severe behavioral disorders
  - 50.6% African American
  - 1.3% Asian
  - 32.2% White
  - 0.7% Native American
  - 12.2% Biracial
  - 3% Other/unknown

- 28.5% of these youth had FASD (86.5% had never been diagnosed or were misdiagnosed; 26.4% of these youth were misdiagnosed as having ADHD)
Prevalence of Fetal Alcohol Spectrum Disorders – South Africa

In a low SES, highly rural of South Africa in the Western Cape Province, FASD occurs in 182 – 259 per 1,000 children or 18-26 percent

In a remote Aboriginal community of the Fitzroy Valley in Western Australia, FASD occurs in 120 per 1,000 children or 12 percent.

Prevalence of Fetal Alcohol Spectrum Disorders - Russia

- The prevalence of FAS among adopted children from Eastern Europe/Russia) living in US 15 to 70/ 1,000
- Children Russian adoptees diagnosed ARND = 34%
- Records of alcohol-exposed pregnancy were significantly higher and constituted 19% to 41%
- Prospective adopting parents are concerned about the high risk of FASD among children adopted from Russia
  - Popova et al 2014.
Public Mental Health

Biotechnical Prevention

– There is a biotechnical prevention/intervention for Fetal Alcohol Spectrum Disorder – Choline 500mg BID.

Psychosocial Prevention
CHOLINE

- Precursor to acetylcholine, phosphatidyl choline
- Contributes to the integrity of the cell membrane
CHOLINE

- The current recommended choline intake for pregnant women is 450 mg/day

CHOLINE in PRENATAL VITAMINS

- Only two of the 25 prenatal vitamins have 50mg of the 450mg of Choline required.
- Six of the 25 have 30mg or less of the 450mg of Choline required.
- The rest have no choline at all.

A biotechnical prevention strategy that might prevent FASD is to increase the Choline in prenatal vitamins.