Comment on Perinatal Factors and Autism

I submitted the following letter-to-the-editor in response to the paper by Glasson et al. (2004). I was told it was rejected for publication because it did not receive a high enough priority rating from reviewers:

Autism is a neurological disorder, but not widely recognized as such because motor milestones are often not delayed beyond accepted norms. The language disorder is the most serious of the recognized "triad of deficits," social withdrawal, lack of communicative speech, and stereotypic behaviors. The child who develops language is suddenly viewed as so much more hopeful. Sadly, the pedantic, stilted speech of those with "high functioning autism" represents language based largely on phrase fragments and often applied strangely out of context.

Prenatal infections, prenatal exposure to alcohol and other drugs, genetic metabolic disorders, and perinatal complications are all recognized as etiologic factors, as pointed out by Glasson et al. in the June issue of the Archives of General Psychiatry [1]. The vulnerable locus in the brain to all of these factors should be the focus of investigations on the brain disorder in autism.

Evidence from (a) the neuropathology of alcoholism and (b) brainstem damage found in experiments with monkeys on asphyxia at birth both merit consideration. Brain abnormalities observed in individuals with autism include many of the same subcortical and brainstem nuclei damaged by chronic alcohol use, known for more than a century as "Wernicke's encephalopathy" [2, 3].

Experimental asphyxia produced a variant of Wernicke's encephalopathy, referred to by Myers as "a monotonous rank order of brainstem nuclei" [4]. Asphyxia was inflicted by pulling a rubber sac over the head of an infant monkey at birth and clamping the umbilical cord. Pulmonary respiration was thus prevented and placental circulation abruptly cut off. The brainstem pattern of damage was considered as possibly relevant to what was at that time known as "minimal cerebral dysfunction," equivalent to what is now referred to as "pervasive developmental disorder," or PDD [5].

The inferior colliculus in the midbrain auditory pathway was most severely damaged by asphyxia inflicted by suffocation and umbilical cord clamping. The inferior colliculus is now known to have the highest rates of blood flow and aerobic metabolism in the brain [6], thus it is susceptible to any factor that disrupts aerobic metabolism including prenatal infections, prenatal exposure to alcohol and other drugs, the abnormal metabolites produced in genetic disorders like phenylketonuria, and in infants with delayed respiration at birth as in the cases presented by Glasson et al. [1].
Auditory system damage may interfere with language development, as I discussed in an article in the Archives of General Psychiatry in 1975 [7].

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References