199. Which and How Many Infants with Massive Infantile Spasms May Benefit from Positron Emission Tomographic Scans?

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Massive infantile spasms (MIS) is an age-specific seizure disorder with a multitude of etiologies. Recently, several authors have advocated obtaining positron emission tomographic (PET) scans in "all" cases of MIS without a clear etiology, as a potential preamble to surgical therapy. The incidence of infants without clear etiology and with normal conventional imaging (computed tomography or magnetic resonance imaging [CT or MRI]), who failed conventional treatment (corticotropin [ACTH] or prednisone), and thus are potential candidates for PET and surgery, is unknown. Our methods involved retrospective analysis of records of 105 infants with the diagnosis of MIS seen at Childrens Hospital Los Angeles during 1981 to 1994. Twenty patients were excluded: information was unavailable on 17, and 3 had no documentation of MIS. Of 85 evaluable infants, 34 had diagnoses established without the need for imaging (e.g., tuberous sclerosis in 8, genetic or metabolical causes in 7, chromosomal anomaly in 3, congenital infection in 2). Fourteen of these 34 infants had abnormal scans. Of the remaining 51 infants, 8 did not have CT or MRI, and 31 had abnormal studies: these revealed congenital brain malformation (9), migration disorders (4), strokes (5), atrophy (11), or tumors and other lesions (2). Therefore, there were 12 infants without an etiology for their MIS, and with normal CT/MRI. Of these, 4 were true cryptogenic, with good response to ACTH and a normal outcome. An additional 3 responded quickly to ACTH. Five infants (5.8%) had poor response to ACTH and normal CT/MRI: i.e., they constitute the population in which PET may have been useful (2 had normal PET studies). Only 6% of infants with MIS will fail treatment for unclear etiology. They may benefit from PET imaging.