Neurological Consequences of Psychotropic Drug Withdrawal in Schizophrenic Children$^1,2$

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A preliminary study is presented, involving 34 schizophrenic children, 6 to 12 years of age, who were carefully observed following discontinuation of active neuroleptic treatment to ascertain the clinical effects of drug withdrawal. The children had been on maintenance therapy for periods of 6 to 15 months. Five neuroleptics were involved: fluphenazine, haloperidol, thioridazine, trifluoperazine, and thiothixene. All but two children suffered massive clinical relapse within 1 to 2 weeks after drug withdrawal. Fourteen of the children exhibited neurological withdrawal emergent symptoms (WES) characterized by involuntary movements and ataxia. In half the children the WES remitted spontaneously. In the remainder, symptoms disappeared within two weeks of resumption of active treatment with another neuroleptic. The findings are discussed in relation to the syndrome of tardive dyskinesia observed in adult schizophrenics.

We have been investigating the effects of a number of neuroleptics on outpatient psychotic children over several years. The children studied had been on maintenance therapy for relatively long periods of time. Informal observations during the course of these studies had drawn our attention to the possibility that upon discontinuation of treatment certain symptoms emerged which were not observed during treatment. The decision was made that

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whenever a child was to be terminated on a given medication an attempt would be made to maintain the child drug free for as long a period as possible in order to more carefully study the effects of drug withdrawal.

This report describes a preliminary effort to observe systematically the effects of neuroleptic drug withdrawal in our population. We were interested specifically in determining: (1) How long would the clinical improvement attained during active treatment be sustained following drug withdrawal; and (2) Would drug withdrawal induce any negative effects comparable to tardive dyskinesia reported in adults after prolonged pharmacotherapy. In this paper we present the effects of drug withdrawal in 34 psychotic children involving five neuroleptics: fluphenazine, haloperidol, thioridazine, trifluoperazine, and thiothixene.

**Subjects**

The 34 children ranged in age from 6 to 12 years and carried the formal diagnosis of childhood schizophrenia, many with prominent autistic features. Almost all children exhibited disturbances in speech and communication, hyperactivity, ineptness and awkwardness of movements, stereotyped behavior, inattentiveness, low frustration tolerance, outbursts of aggressive destructive behavior, disturbances of affect with marked lability of mood, and severely impaired ability to relate to others. All children showed disturbances of sleep, eating, and toilet habits. Also, all functioned at a retarded level.

On examination a few children gave evidence of hard neurological signs such as mild hemiparesis and history of seizures. The majority of the children however showed soft signs suggestive of organicity. In general, the neurological examination was difficult to perform because of the children’s hyperactivity and poor capacity for cooperation; a more detailed description of this population has been presented elsewhere (Engelhardt, Polizos, & Margolis, 1972).

Information with respect to duration of treatment, dosage, and age for the 34 children at the time of drug termination is presented in Table 1. Mean duration of treatment was relatively long term, ranging from 6 to 15 months. Drug dosage was relatively high, approximating that generally used in adult outpatient schizophrenics. The children’s ages were comparable across the five drugs.

**Methods**

Each child was seen at least weekly after starting on the withdrawal protocol and was maintained on the withdrawal schedule for as long as his clinical condition permitted. Children who were receiving antiparkinson medication