The Use of LSD (d-Lysergic Acid Diethylamide) In the Therapy of Children

(A Brief Review)

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To most pediatricians d-lysergic acid diethylamide (LSD) probably represents a drug that has through newspaper and magazine articles become the drug most dangerous to the youth of the nation. A review of the medical use of LSD in children throws an entirely different light on the subject. It will appear from the following brief review that LSD offers new hope in the psychotherapy of children, especially to autistic and schizophrenic children. By following the scientific paths of a few pioneers to be discussed here, important discoveries remain for those with medical courage and scientific imagination.

Apparently R. C. Murphy and T. T. Peck were among the first physicians to report at a meeting held at Princeton, New Jersey, under the auspices of the Macy Foundation[1] that children may safely be given LSD-25. Murphy administered LSD to three children over a period of several months. One of these children was an 8-year-old girl who had a long-standing chronic resistive character disorder. From 1955 to 1956 she was treated for enuresis and had serious sexual conflicts. Routine psychotherapy for one year had resulted in no improvement. She was treated by Dr. Murphy with LSD, with the dose slowly increased to 300 mcg once weekly. Her enuresis stopped after the second LSD session in which she became disoriented and called continually for her mother. During the treatment, improvement was noticed by both relatives and friends as well as by the child herself. She became more outgoing, more generous and gave up the blind stereotypes which formerly controlled her life after several months of LSD therapy.

Dr. Murphy again reported on these children in the spring of 1965 at the Second International Conference on the Use of LSD in Psychotherapy held at South Oaks Hospital, Amityville, New York.[2] The treatment with the large doses of LSD left no residual effects that could be considered as brain damage due to the LSD.

T. T. Peck treated five children between the ages of 5 and 14. Sandison and his group treated 2 children, Hoffer treated 1, and Chandler and Hoffman treated 1.[3] No complications were reported. These data fit in with the results of Bender's studies, which are more extensive.

Bender, Goldschmidt and Sankar[4] began their studies of the effect of LSD-25 and UML-491 (Sansert) on autistic schizophrenic children in 1961. A treatment program for 14 schizophrenic children (intractable to the usual routine treatment) with ages ranging from 6 to 11 years, was planned. Groups of 5

* From the South Oaks Research Foundation, Amityville, New York.

children were given 25 mcg of LSD-25 intramuscularly to begin with. Two of the children between the ages of 10 and 11 were removed from the program because they reacted with disturbed, anxious behavior. The other 12 children reacted with mood elevation, playfulness, acceptance of contact with adults, increased ball playing, paper tearing, motor play, rhythmic hand clapping and body swaying. They appeared to be unusually interested in their environment. The height of the reaction was rather typical of injected LSD-25 and occurred shortly after injection and the effect was maintained for about three hours. Following these exploratory injections, LSD-25 was given orally and increased to 100 mcg from once a week to three times weekly since no untoward side effects were noticed. Finally 100 mcg of LSD-25 was given daily and this was continued for consecutive six weeks until the time that Bender, Goldschmidt and Sankar made their report. They concluded on the basis of the observations of ward personnel, teachers and mothers as well as the Vineland Maturity Scale determination that:

1. All of the children tolerated the drug without side effects, toxic features, regressive behavior, or other untoward responses.
2. Previously employed medication was unnecessary. All were able to get along without any further medication.
3. All of the children showed some mild degree of favorable response which increased steadily.
4. The more outgoing mood following the ingestion of the drug tended to carry over through the whole day.
5. There was increased eagerness in motility play with adults and other children, if directed by adults.
6. Hostile aggression was decreased.
7. Positive contact with adults was sought with greater response to affection.
8. Habit patterning improved.
9. Physical condition improved.
10. Stereotyped whirling and rhythmic behavior decreased.
11. Reactions were more appropriate to ordinary environmental stimuli and situations.
12. The Vineland Maturity Scale reading was qualitatively higher in all children.

On the other hand, it is most important to note that none of the children showed a recordable gain in the use of language.

Bender and her co-workers concluded that the daily administration of 100 mcg of LSD-25 to pre-puberty, autistic, schizophrenic children resulted in affective, autonomic and central nervous system stimulation. Of great importance was the report that the organization of perceptual experiences improved. *These changes appeared to be maintained with continuous administration of the drug and to have a favorable influence on the clinical course.*

Sansert is a methylated derivative of LSD, with a butanol substituted for two ethyl groups on the amide linkage. Sansert was administered to eight autistic, schizophrenic children in divided doses, beginning with 8 mg daily.

After the first dose of Sansert, the reactions were similar to those after the first dose of LSD. For three weeks the children tolerated the drug well, with brief episodes of changing muscle tension and kinesthetic sensations with clowning, staggering gait and twisting of the neck, back and arms. These children appeared brighter, more outgoing and less stereotyped in behavior.

In another report in 1963, Bender, Faretra and Cobrinik[5] began a study of 50 children of both sexes, diagnosed in the hospital as having childhood schizophrenia. Their ages ranged from 6 to 12 years; all had been in the hospital for periods varying from six months to two or more years. Half of the children were autistic and essentially non-verbal; the others were psychotic but verbal and alert.

Bender and her group confirmed and extended her pioneering experiments in this group with both autistic and verbal children. The selected children were not separated from the others and continued with the usual school and activity programs as well as home visits. The dose of LSD-25 was gradually increased from 50 mcg to 150 mcg daily in two divided doses. Sansert was increased from 4 mg to 12 mg daily in two divided doses, using a long-acting preparation. Duration of treatment ranged from approximately two months to as long as twelve months for the original group of patients discussed in the foregoing. Half of the children received LSD-25 and half Sansert, with the choice made at random.

Bender and her co-workers were unable to distinguish important characteristic differences in the clinical response to either LSD-25 or Sansert, though there seemed to be moderately greater excitability in the early treatment with LSD-25.

Confirming early observations, *no child showed evidence of side effects*, toxicity or irreversible regression from either medication. There were definite changes in response to the environment, which were most remarkable in children as autistic as these. Gaiety, happiness, laughing increased, with improvement in alertness, awareness and interest in watching other people. Personnel and parents were enthusiastic about the changes in the children, describing them as "more affectionate" and "more aware". Several of the children who had been showing extreme aggressive behavior prior to LSD-25 and Sansert became quieter, more manageable and more "normal" in their contacts with other persons.

The schizophrenic, verbal children, ranging in age from 6 to 12 years, showed two major changes: 1) there was a decrease in personalized ideation and a corresponding gain in accuracy of response in psychological tests; (2) an inhibition of strongly emotional or "feeling" reaction on the test cards.

Bender and her group reported that tolerance development in children seems to be different from that observed in adults.

In her most recent paper, Bender[6] summarizes her program as follows:

"Schizophrenic children receiving d-lysergic acid or a derivative in daily adequate doses are without toxicity, side effects or gross emotional reactions. They show altera-

tions in mood, appearance of physical well being, responsiveness, habit patterning, soft neurological signs, sympathetic nervous system stability, integrated perception, reality testing, thought processes, fantasy content and intellectual and personality maturity.

"There are concurrent biochemical changes in the binding of serotonin and freeing of epinephrine. Some of these alterations occur in the first few days, others in the first few weeks and tend to level off, others continue for many months and are integrated into a more healthy and mature level in the development of the child."

It is important to note that Bender has included Psilocybin in her present program as well as a preliminary report in a carefully structured study of six pairs of matched, pre-puberty, schizophrenic boys.

Freedman and his co-workers[7] administered LSD-25 to 12 autistic, schizophrenic children who were attending a day school. Although Freedman and his group describe autonomic effects similar to those seen in adults, they concluded that the development of tolerance made its successful use in therapy of questionable value.

Simmons, Leiken, Lovaas, Schaeffer and Perloff[8] report that their study of a pair of identical, male, autistic twins, 5 years of age, demonstrated that LSD-25 could be profitably used as a therapeutic adjunct to the various intractional therapies currently in vogue. They report the following changes in behavior: (1) increased eye to face contact and increased responsiveness to adults, (2) an increase in smiling and laughing behavior, and (3) a reduction of self stimulation.

A paper by Rolo, Krinsky, Abramson and Goldfarb[9] deals with the study of a schizophrenic child 12 years of age. Essentially, they report difficulties in developing a technique which would study the effects of LSD-25 in children. This paper should be consulted in connection with the methodology of studies of this type.

Conclusion

Comparatively large doses of LSD-25 and Sansert may be safely administered to autistic schizophrenic children for extended periods of time. Brain damage was not observed. Rather, improvement is reported.

Extension of this work all reported during the last decade offers new hope in the treatment of schizophrenic children.

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