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PRELIMINARY STUDY OF CERTAIN CHANGES OCCURRING UNDER SODIUM AMYTAL

JAMES W. LAYMAN

The present report deals with a quantitative study of certain intellectual and motor changes which occur in schizophrenic patients under the influence of sodium amytal, an hypnotic drug used for therapeutic purposes with patients receiving psychiatric treatment at the Psychopathic Hospital of the State University of Iowa.

The measures being used are the Stanford-Binet, Performance, Motor, Bernreuter and Rorschach tests. The present report is tentative and limited to some aspects of results obtained on the first three tests mentioned above. Each subject was tested three times: before, during and after administration of amytal.

Results from the Stanford-Binet as a whole show reliable improvement as measured by all of the accepted criteria. Whether difference in mental age, decrease in scatter, deviation from vocabulary level or decrease in tests failed within range is used, the differences are statistically reliable and indicate better performance under amytal. In some instances the third testing is better than the first, although all are lower than when subjects were under amytal. This agrees with Schott's (4) findings that test performances of psychotic cases may improve with repeated testing.

The secondary symptoms of schizophrenia have been described by Dearborn (1), Malamud (3), Woods (5), and others. Among these symptoms are generalized deterioration of intellectual functions, vague and meaningless language responses, deficiencies in immediate memory reproductions, and disturbances in associative functions and attention. Analysis of the subtests in the Stanford-Binet shows reliable improvement in many of these characteristics. The improvement is not confined to certain test levels since some tests in all levels show better performance. Since the tests are already arranged in approximate order of difficulty this would further indicate that improvement occurs in certain kinds of intellectual activity rather than in certain levels of test difficulty.

Although the physician administering amytal indicated some change in each patient, not all improved from the view-point of furnishing additional therapeutic information, a finding which agrees with Lindemann (2) and others. However, the qualitative changes produced by amytal as a result of freedom from inhibitory factors bring about greater rapport, more interest and concern with

test results, resulting in improved performance. The shift to more meaningful, accurate and pertinent responses produces a pattern of tests more nearly resembling the normal. This would lend support to the theory that only as the individual functions in an integrated fashion can we obtain results representative of that individual. However, despite the improvement, one cannot assume a complete return to normalcy from a psychiatric view-point, but rather that certain of the secondary symptoms of schizophrenia are here shown to become less apparent while the patient is under amytal.

All performance tests show improvement during the influence of amytal. With the Seguin board where the designs and blocks have a simple relation, i.e., a single block fills each design, the number of moves becomes almost minimal with a concomitant reduction in time. In the remaining form-boards both time and moves are reduced. In general, greatest reliability of differences occur with the more difficult boards, if the ratio of minimal necessary moves to actual moves is taken as the standard of difficulty. Co-efficients of correlation between times taken for the various boards are positive and in most cases reliable, indicating that persons slow on one performance board tend to be slow on others. Similarly with the number of moves, correlations show that those requiring large numbers of moves on one board tend also to require a large number on the others. Correlations between time and moves required in general increase in direct ratio with the difficulty of the boards. The correlations are of such a nature, however, as to bear out the observed feature of the performance, namely, that all of the time spent in working at a board is not devoted to moves but that much of it is spent "looking" at the board as if the patient were attempting to ascertain the relationships before placing the particular block involved.

In the case of the Guidit test, one involving eye-hand co-ordination, there is a tendency to improve scores under amytal although some take more time than they did when not under the amytal. In both cases the improvement is definitely reliable. In addition there is less variability between trials of each subject while under amytal. A finger dexterity test shows relatively little improvement. Tapping three pegs inserted in a triangular arrangement shows increased scores with fewer errors or misses.

In so far as these tests measure intellectual activities as exhibited in language or performance, or motor co-ordination, we find improvement under amytal. This is more marked in some activities

than others, but it is definitely indicated that with freedom from inhibitory factors there is a tendency for performance to improve. In conclusion the results indicate possible experiments for future exploration of psychotic deterioration.

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CHARACTERISTIC FEATURES OF INTELLECTUAL DETERIORATION IN SCHIZOPHRENIA AND ORGANIC PSYCHOSES

ELEANOR PALMER

This study compares the performance of a group of deteriorated schizophrenics and organic brain diseases on the short form of the Stanford-Binet Scale with that of a control group of subnormals grading at the same mental age. Analysis of the data reveals significant differences with respect to vocabulary level, extent of scatter, and relative difficulty of particular test items which may be described in terms of an objectively recognizable "scatter pattern."

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