Antinuclear Antibodies in Psychiatric Illness: Their Relationship to Diagnosis and Drug Treatment

EVE C. JOHNSTONE, K. WHALEY

British Medical Journal, 1975, 2, 724-725

Summary

Antinuclear antibodies occurred more often and in higher titres in psychiatric patients than in controls. Anti-DNA antibodies were not found. We suggest that antinuclear antibodies may be drug-induced and that lithium carbonate may have a particular tendency to produce this reaction.

Introduction

Psychiatric abnormalities are common in patients with systemic lupus erythematosus (S.L.E.). They may occur early and form part of the presenting picture. The features vary, and though the picture is often that of an organic psychosis, presentations typical of functional psychoses and neurotic illnesses occur. Our recent experience was in keeping with this finding, in that on several occasions a diagnosis of S.L.E. was made in patients who had initially presented psychiatrically. This caused us to consider what the true incidence of S.L.E. in psychiatric practice might be, as it is normally regarded as rare. Several drugs induce S.L.E. or a condition closely resembling it. Notable in this respect is hydralazine, but other drugs including procainamide and some anticonvulsants have similar effects. Clearly drug ingestion would be relevant to the study of the incidence of features suggestive of S.L.E.

We therefore studied the incidence of serological evidence of S.L.E. in 100 patients with acute psychiatric conditions as compared with controls and considered the relationship between the presence of antinuclear factor (A.N.F.) and (a) the psychiatric diagnosis and (b) the drug history.

Method

Ninety-two inpatients and eight day patients at an acute general hospital psychiatric unit were studied; 71 were women and 29 men and their mean age was 45 years. The mean length of time since their first psychiatric attendance was 48-24 months. Altogether 110 diagnoses were put forward (see table II). The current drug regimens and those of the previous year are shown in table III. All patients gave a sample of venous blood, from which serum was separated and stored at -20°C until used. All sera were tested by immunofluorescence for A.N.F. in one batch. Sera were screened at a titre of 1/16 and then titrated at quadrupling dilution until an end-point of staining was achieved. Sera containing A.N.F. were tested for DNA antibodies by a modification of the ammonium sulphate precipitation technique of Pincus et al. Sera from 112 osteoarthritic patients matched for age and sex with the psychiatric patients were used as controls.

Results

The results of the serological investigations are shown in table I. The diagnoses of the patients with A.N.F. are shown in table II. No single diagnosis was clearly associated with the presence of A.N.F. but there was a tendency for patients with A.N.F. to be psychotic rather than neurotic. In the entire patient sample 51 of the 110 diagnoses made were of psychotic as opposed to neurotic illness, while in the patients with A.N.F. 17 out of 27 diagnoses were of psychosis rather than neurosis (P<0.05).

The drug regimens of the patients with A.N.F. are shown in table III. There was a tendency for patients on lithium to have A.N.F. Seven patients in the study were on lithium. Of these, four had A.N.F., and in three of these the titre was 1/64 or greater (see fig.). This tendency to high titres of A.N.F. in patients on lithium as opposed to the remainder of the sample is statistically significant (x² = 9.52; P<0.01). Table III also shows that the patients with A.N.F. tended to be on "other drugs." These varied greatly and were generally for intercurrent disease, mainly not affecting the central nervous system. DNA antibodies were not found in any of the sera.

<table>
<thead>
<tr>
<th>TABLE I: Results of Serological Tests for A.N.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results</td>
</tr>
<tr>
<td>Psychiatric Patients</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>(n=100)</td>
</tr>
<tr>
<td>Negative</td>
</tr>
<tr>
<td>Weakly positive</td>
</tr>
<tr>
<td>Strongly positive at 1/16</td>
</tr>
<tr>
<td>Positive at over 1/16</td>
</tr>
</tbody>
</table>

x² = 10.16; P<0.02.
DNA antibodies were not found in any of the patients.

University of Glasgow
EVE C. JOHNSTONE, M.R.C.P., M.R.C.Psych., Lecturer in Psychological Medicine (Now Member of Scientific Staff, Division of Psychiatry, Clinical Research Centre, Middlesex)
K. WHALEY, M.D., M.R.C.Path., Lecturer in Immunopathology (Now Instructor in Medicine, Division of Immunology and Connective Tissue Diseases, Medical College of Virginia, Richmond, Virginia, U.S.A.)

Br Med J: first published as 10.1136/bmj.2.5973.724 on 28 June 1975. Downloaded from http://www.bmj.com on 20 February 2022 by guest. Protected by copyright.
Discussion

A.N.F. was significantly more prevalent in the psychiatric patients than in the controls. Its presence was related to the diagnosis of psychosis, the presence of intercurrent disease, and the ingestion of lithium carbonate. The association between psychiatric illness and antinuclear antibodies suggests either that antinuclear antibodies are the underlying cause of the psychiatric disorder or that psychotic illness or its treatment or both predisposes the patient towards developing antinuclear antibodies. It seems unlikely that these patients' psychoses were the presenting features of S.L.E., since though psychiatric presentations of this condition do occur they are rare, and of the 25 cases with A.N.F. only one fulfilled the criteria for the diagnosis of S.L.E. as laid down by the M.R.C. Moreover, in none of the patients were anti-DNA antibodies detected. Anti-DNA antibodies are found in 75% of patients with S.L.E. On the other hand, the administration of certain drugs induces the development of a syndrome clearly resembling S.L.E. and usually but not always less severe than the spontaneous form. This condition is normally associated with the absence of anti-DNA antibodies.

Our findings could be explained on this basis. Drug treatment, particularly with lithium carbonate, may have produced the excess of A.N.F. in the psychiatric patients. Our conclusions must necessarily be tentative because the number of patients on lithium was small. Moreover, we were unable to make the ideal comparison in which the psychiatric sample would have been compared with a group of normal people matched for age, sex, amount of previous physical illness, and previous environmental circumstances. Our results do, however, point to a possible association between the administration of lithium carbonate, a drug in increasingly widespread long-term use, and drug-induced S.L.E., a condition which may be serious and may not remit on withdrawal of the drug. More detailed examination of this possibility is therefore indicated.

We thank the consultants of the department of psychological medicine at the Southern General Hospital, Glasgow, for allowing their patients to be used in this study, and Drs. Susan Whyte and D. G. Cunningham Owens for their help in collecting the specimens.

Requests for reprints should be addressed to: Dr. E. C. Johnstone, Division of Psychiatry, Clinical Research Centre, Harrow, Middlesex.

References
12 Fessel, W. J., and Solman, G. F., California Medicine, 1960, 92, 266.