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Depressive Typologies and Response to Amitriptyline

By E. S. PAYKEL

The aims of this paper are to report findings from the use of an empirically derived typology to predict response of depressed patients to amitriptyline, and to compare this typological prediction with predictions from two other classifications of depressed patients, one traditional and one newer.

The most commonly used classification of depressed patients has been the traditional clinical division into two groups loosely labelled in overlapping terminologies as psychotic or endogenous, and neurotic or reactive (21). There is moderate evidence that patients regarded as psychotic or endogenous show a better response to tricyclic antidepressants (2, 4, 8, 22). This hypothesis has, however, been challenged (24).

An alternative classification intended to predict treatment outcome has been described by Overall, Hollister and colleagues (15). Using a computer classification procedure they derived three groups, labelled anxious, hostile and retarded depressives. Retarded depressives responded best and anxious depressives worst to tricyclic antidepressants; anxious depressives responded best to phenothiazines, while hostile depressives did not respond particularly well to either class of drug (6, 15). Relationships in patient assignment between the Overall-Hollister typology and the psychotic-neurotic dichotomy have not been reported directly though retardation has been regarded as one characteristic of psychotic depressives (7, 13).

In a previous paper, Paykel (17) reported a four-group typology of depressed patients derived by applying a multivariate cluster analysis procedure for grouping individuals to clinical ratings of a heterogeneous sample of depressed patients. The four groups were interpreted as psychotic depressives, anxious depressives, hostile depressives, and young depressives with personality disorder. Psychotic depressives were the oldest and most severely ill, often with depressive delusions. They gave high scores for such phenomena as guilt, retardation, anorexia and delayed insomnia typically associated with psychotic or endogenous depression. There was less evidence of stressful events preceding onset of the episode, or of premorbid neuroticism. Anxious depressives were moderately depressed, but with an admixture of anxiety and minor neurotic symptoms such as fatigue, obsessional symptoms and depersonalization. They tended to have had previous episodes, and had high scores on a self-report scale of premorbid neuroticism. They appeared to be a middle-aged neurotic group. The third and fourth groups consisted of younger patients, and differences between them were less striking. The group labelled as hostile depressives showed evidence of a good deal of hostility and self-pity. The young depressives with personality disorder were young patients with relatively milder depressions overall, but with marked fluctuations of mood related to environmental changes. Histories showed a high incidence of disturbed social relations suggestive of personality disorder. This four-group typology appeared to overlap with both the psychotic-neurotic dichotomy and the Overall-Hollister typology.

The original sample of depressed patients used to derive this typology received treatment which was diverse and uncontrolled. This paper will report the use of the typology in a new depressive sample to predict outcome of four weeks treatment with a single medication, the tricyclic antidepressant amitriptyline. Findings, as to both group assignment and treatment response, will be compared with the psychotic-neurotic clinical dichotomy and the Overall-Hollister typology.

Methods

Subjects

Subjects for the study were 85 female depressed patients, aged 25–60. They were consecutive patients

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included in the preliminary treatment phase of a two-clinic controlled trial of maintenance treatment of depressed patients (12). Fifty-four of the subjects were treated at one centre and 31 at the other. The prime criterion for inclusion was depression of at least two weeks duration and of sufficient intensity to be rated at least seven on a scale of range 3–15 obtained by summing separate scores of 1–5 for verbal report, observed behaviour, and secondary symptoms of depression (22). Patients were excluded if the depression appeared secondary to another predominant syndrome, for instance, schizophrenia. Also excluded were alcoholics, drug addicts, patients with subnormal intelligence, serious physical illness, those receiving ongoing intensive psychotherapy, and those who had received an adequate course of a tricyclic antidepressant in the last six months with failure of response.

Treatment

All patients were treated with amitriptyline, in flexible dosage within the range of 100–200 mgm. daily, the minimum therapeutic level of 100 mgm. being achieved within 14 days of starting. In both third and fourth weeks the mean dose was 140 mgm. daily and median dose 150 mgm. Medication was given in divided doses, half the daily dose usually being given at bedtime (3). Treatment was continued from four to six weeks depending on response, but this paper will be concerned only with the first four weeks of treatment received uniformly by all patients. Seventy-one (84 per cent) of the patients were treated as out-patients, and 14 (16 per cent) were in hospital. Out-patients were seen weekly for about 45 minutes. Between the two collaborating centres, four staff psychiatrists and two psychologists, all with substantial research experience, carried out treatment and rating. Treatment in this phase was non-blind.

Altogether 105 patients entered the study. The analyses to be reported here include only the 85 patients who completed at least 3½ weeks of drug treatment. Twenty patients who entered treatment dropped out. The majority, 15, of the dropouts were on account of poor co-operation or failure to take medication. Only one was due to failure to improve and clinical worsening; four dropouts were for other reasons.

Assessment measures

Assessments were made immediately before treatment, and at weekly intervals therafter. The main rating instruments relevant to this report were the Clinical Interview for Depression (19) (a modified and expanded version of the Hamilton Rating Scale for Depression), a seven point scale of global severity of illness, the 13 point scale of severity of depression also used as a criterion for inclusion, and the Brief Psychiatric Rating Scale (14). Ratings were made by a single rater, the clinician treating the patient. Prior to the start of the study joint rating sessions were undertaken for training and to ensure reliability. Social histories were obtained before treatment was started, and additional ratings were made on other instruments not relevant in the present context.

The outcome measure was the global rating of severity of illness of range 1–7. For statistical analysis the main variable was a change score obtained by subtracting the four week rating from the initial rating. The final score after treatment, and a change score adjusted by analysis of co-variance for initial level, were also used. Parallel additional analyses using the 13 point summed rating of severity of depression produced closely similar results. Overall there was moderate improvement in the patient sample over the four weeks. On the global illness rating of 1–7 the initial mean score was 4·01 (S.D. = 0·75), indicating moderate to marked illness; the four week rating was 2·77 (S.D. = 1·08) corresponding to borderline to mild illness. The mean improvement was 1·25 (S.D. = 1·33).

The predictor categories to be reported in this study are assignments to three alternative typologies of depressed patients: (1) the four group cluster analysis typology previously described by Paykel (17); (2) the psychotic-neurotic clinical dichotomy, in the form of clinical diagnoses of psychotic or neurotic depression, based on the schema of the American Psychiatric Association Diagnostic and Statistical Manual (1); (3) the Overall-Hollister typology of retarded, anxious, and hostile depression (15). Methods of assignment will be described in the appropriate sections.

Results

Four-group cluster-analysis typology

The patients in this study had been rated on the same instrument, the Clinical Interview for Depression, as were those in the earlier study from which the four-group typology was derived (17). Multiple discriminant analysis were first carried out using the patient sample and four groups from the earlier study and their scores on twenty-nine clinical rating variables shared between studies. Three canonical variates were obtained to separate the four groups, and cut-off points were derived to give maximal correct assignment. The new individuals of the present study were

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scored on these canonical variates and assigned to the groups on the basis of the derived cut-off points. Examination of mean scores for the four derived groups on the rating variables showed closely similar characteristics to the four groups of the original study, except that hostile depressives tended to show less evidence of overt hostility and self-pity.

Means for initial, final, and change scores on the global illness scale are shown in Table I and illustrated diagrammatically in Figure I. Patients were assigned approximately equally to the four groups. This pattern differs a little from the earlier study, where there were fewer psychotic depressives and more young depressives. These differences reflect a higher cut-off point for severity as an inclusion criterion in the present study. As previously, there was a ranking on initial severity, psychotic depressives being the most severely ill, anxious patients intermediate, hostile depressives and young depressives with personality disorder the least severely ill.

As shown in the Table, final scores for the four groups differed significantly. More importantly, the change scores differed significantly at the 5 per cent level between the four groups. All groups showed some improvement. Psychotic depressives, initially the most severely ill, improved the most. Anxious depressives, although initially only a little less severely ill, improved much less and showed the most residual illness of all groups at the end of treatment. Hostile depressives and young depressives with personality disorder, least ill to start with, showed intermediate improvement and were least ill, but by a small margin, at the end of treatment.

The cluster-analysis typology, therefore, significantly distinguished outcomes, and in a way which appeared consistent with the literature in that psychotic depressives appeared to improve the most and anxious depressives, an apparently neurotic group, the least. However, subtraction change scores usually correlate with initial severity in such a way that patients who are initially most severely ill improve the most (23). The findings could not

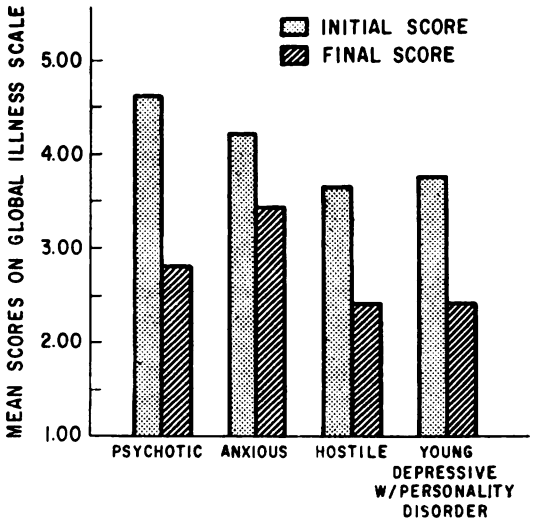


FIG. 1.

TABLE I

Four group cluster analysis typology. Mean initial and outcome scores on global illness scale

Measures	Psychotic depressives N = 16		Anxious depressives N = 22		Hostile depressives N = 26		Young depressives w/personality disorder N = 21		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	F-value
Initial score	4·63	0·89	4·23	0·69	3·65	0·49	3·76	0·63	8·93***
Final score	2·81	0·75	3·46	1·10	2·42	1·24	2·43	0·68	5·28**
Subtraction change score	1·81	1·11	0·77	1·11	1·23	1·18	1·33	0·97	2·83*

* $p < ·05$.
** $p < ·01$.
*** $p < ·001$.

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simply be explained by the differences between groups in initial severity, since anxious depressives, initially intermediate in severity, improved the least. It did appear, nevertheless, that this element might explain the large improvement shown by psychotic depressives.

In order to explore this issue further, the change score was adjusted by analysis of covariance for initial level, and outcome differences between groups were examined with the adjusted score. Findings are shown in Table II. Prediction remained significant after analysis of covariance and with a slightly higher F ratio, indicating that group differences in outcome were not merely a reflection of initial level. Adjusted group means showed that the divergent response was the poor improvement of anxious depressives. With the effect of initial level removed, psychotic depressives closely resembled in their improvement the hostile depressives and young depressives with personality disorder, and, indeed, improved very slightly less than these groups.

TABLE II

Four group cluster analysis typology. Analysis of covariance of change scores for initial level

	Adjusted means		Mean square	D.F.
Psychotic depressive	1·37	Groups	3·807	3
Anxious depressive	0·62	Covariate	18·787	1
Hostile depressive	1·49	Residual	0·985	80
Young depressive w/personality disorder	1·52		F=3·87	p<·05

Psychotic-neurotic clinical diagnoses

Relationship of the psychotic-neurotic dichotomy to outcome was next examined. For this purpose routine clinical diagnoses were used. These were made by the clinicians in charge of the treatment according to the criteria of the second edition of the American Psychiatric Association Diagnostic and Statistical Manual (1). This analysis did not conform to a rigorous predictive design since diagnoses were not made until the end of treatment, and hence might have been contaminated by the clinicians' preconceptions regarding outcome. However, the six clinicians involved were of diverse backgrounds and did not have any strong expectations regarding which patients might respond best. For analysis, patients receiving diagnoses of affective psychoses (involutional melancholia and manic-depressive illness) were grouped with psychotic depressive reactions (reactive depressive psychosis) to a single class, psychotic depression, and were compared with those receiving diagnoses of depressive neurosis.

Findings are shown in Table III and Fig. 2. The pattern of outcomes was different from that for the four-group typology. Again initial scores differed significantly between groups, and so did final scores. These final differences seemed merely to be a persistent reflection of the greater initial severity of psychotic depressives. This expected correlation between initial and final scores is a frequent and well known finding in psychiatric data, and is often adjusted for by analysis of covariance (25). More importantly, diagnoses did not differentially predict improvement. Mean subtraction change scores were not significantly different in the two groups.

A further analysis of change scores with initial level as covariate was also carried out, and adjusted means are shown in the Table. Here also there was no significant difference between groups. This analysis also confirmed that differences on final scores merely reflected initial level. Although it does not appear to have been widely recognized, the F ratio for group differences using a subtraction change score adjusted by analysis of covariance for initial level must be identical with that for the corresponding final score adjusted in the same manner (28). Differences in the final score therefore ceased to be significant when adjusted in this way.

The relationship of psychotic-neurotic clinical diagnoses to four-group cluster analysis assignment was also examined. A cross-tabulation of group membership is shown in Table IV. There were significant differences, as might be expected, 56 per cent of psychotic depressives

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TABLE III

Clinical diagnoses of psychotic and neurotic depression. Mean initial and outcome scores on global illness scale

Measures	Psychotic depression[1] N = 23 Mean	S.D.	Depressive neurosis N = 62 Mean	S.D.	F value
Initial score	4·52	0·85	3·82	0·62	17·50***
Final score..	3·17	1·27	2·61	0·96	4·76*
Subtraction change score	1·35	1·45	1·21	0·99	0·25
Covariance adjusted mean change score	0·99		1·34		1·58

* $p < \cdot 05$.
*** $p < \cdot 001$.
[1] Includes major affective disorders (296) and psychotic depressive reaction (298) as listed in the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders (1968).

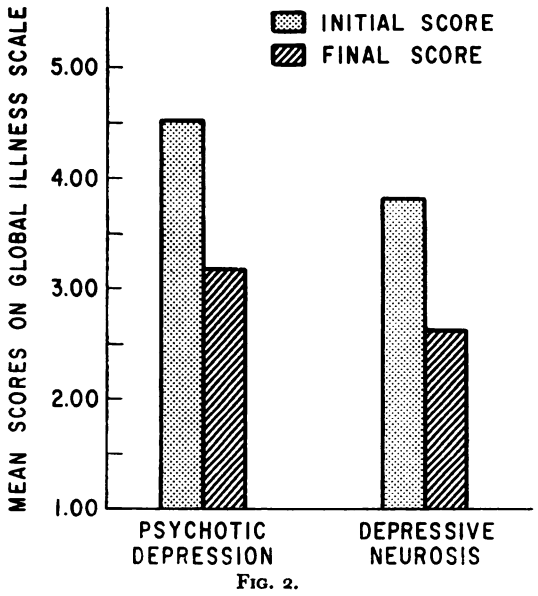


FIG. 2.

in the cluster-analysis typology receiving one of the psychotic diagnoses, as opposed to 45 per cent of anxious depressives, 12 per cent of hostile depressives and 5 per cent of young depressives with personality disorder. In each group the remainder were diagnosed as neurotic depressives. A special feature of the cluster-analysis typology was the derivation of three groups, anxious, hostile, and young depressives with personality disorder, from the diversity of patients subsumed under neurotic depression. The significant outcome differences among the four groups were mainly due to the poor improvement of anxious depressives. It would appear that the traditional two-group schema failed to differentiate outcomes largely because it failed to isolate this anxious group.

Overall-Hollister typology

The last set of analyses concerned the Overall-Hollister typology. All patients had been rated initially on the Brief Psychiatric Rating Scale (14) which formed the basis for the original derivation of the typology (15). The patients were assigned to one of the three groups using profiles on these ratings and a computer procedure for assignment (16).

A substantial majority of 62 patients, 73 per cent of the total, were assigned to the anxious group. Twenty-one were assigned to the hostile group; only two subjects were assigned to the group of retarded depressives. As previously, outcome was examined using the global illness scale. The minuscule group of retarded depressives were omitted from the analysis. The anxious and hostile depressives were found to be very closely comparable both on initial level and on outcome; the small differences were very far from statistical significance. Since the groups were closely comparable in initial level, adjustment of outcome scores by analysis of covariance did not materially change these findings.

Cross-tabulations of group membership between Overall-Hollister groups and the cluster-analysis typology were examined and are shown in Table V. The apparent significance at the

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TABLE IV

Four group cluster analysis typology and psychotic-neurotic clinical diagnoses. Cross tabulations of patient assignment

Clinical diagnoses	Four group typology							
	Psychotic depressive		Anxious depressive		Hostile depressive		Young depressive with personality disorder	
	N	%	N	%	N	%	N	%
Psychotic depression[1]	9	56·2	10	45·5	3	11·5	1	4·8
Depressive neurosis	7	43·7	12	54·5	23	88·5	20	95·2

$\chi^2 = 19{\cdot}1$.
$p = < {\cdot}001$.
[1] Includes major affective disorders (296) and psychotic depressive reaction (298) as listed in the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders (1968).

TABLE V

Four group cluster analysis typology and Overall-Hollister typology. Cross tabulations of patient assignment

Overall-Hollister typology	Four group typology							
	Psychotic depressive		Anxious depressive		Hostile depressive		Young depressive with personality disorder	
	N	%	N	%	N	%	N	%
Retarded depression	2	12·5	0	0·0	0	0·0	0	0·0
Anxious depression	11	68·7	20	90·9	15	57·7	17	81·0
Hostile depression	3	18·7	2	9·1	11	42·3	4	19·0

$\chi^2 = 16{\cdot}78$.
6 d.f. $p < {\cdot}05$.

5 per cent level must be interpreted cautiously in view of low cell frequencies. However, the two retarded depressives were assigned in the cluster-analysis typology to the psychotic group as predicted on the basis of this group's high scores for retardation, and there were weak tendencies for anxious and hostile groups from both typologies to overlap.

Overlap between the Overall-Hollister typology and clinical psychotic-neurotic diagnoses was also examined. The relationship was not statistically significant. However, the two retarded depressives did receive clinical diagnoses of psychotic depression; so also did sixteen anxious depressives and five hostile depressives.

DISCUSSION

Prediction by cluster-analysis typology

The findings of this study indicate that the outcome of four weeks treatment of depressed patients with amitriptyline can be predicted significantly by the four-group cluster analysis typology. Outcome in this study was not predicted by the simple psychotic-neurotic clinical dichotomy, or by the Overall-Hollister typology. In the cluster-analysis typology, psychotic depressives showed the most improvement on subtraction change scores. Hostile depressives and young depressives with personality disorder showed intermediate improvement, but since they were initially the least ill, were least ill at the end of treatment. Anxious depressives improved the least and were most ill at outcome.

Subtraction change scores are always likely to correlate with initial severity of illness, since those patients who are most ill initially have the greatest range for improvement (23). In this respect psychotic depressives might be expected to show considerable improvement,

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and the hostile depressives and young depressives less improvement. The aberrant group appeared to be the anxious depressives who although initially moderately severely ill showed the least improvement. Covariance adjusted scores were not used in this study as the main outcome criterion, since analysis of covariance assumes homogeneity of regression, and it is preferable to avoid this assumption when using a typological model of prediction (20). In this case, however, scores adjusted by covariance for initial level confirmed the poor improvement of anxious depressives. Moreover, psychotic depressives showed slightly less improvement than did hostile depressives and young depressives with personality disorder.

The findings indicate predictive validity for the cluster-analysis typology. The philosophy of classification in this context has been discussed by Hempel (5). The more extra information, concurrent, predictive, or explanatory, that can be generalized from a classification, the greater is its value. The derivation of this typology by a multivariate statistical procedure has been described previously (17). In the original sample the groups differed from each other on almost all rating variables and appeared clinically meaningful. Since the statistical procedure used in group derivation involved maximal separation on rating variables, these differences could not validate the groups. Subsequently, additional variables not involved in derivation of groups were found to distinguish them, thus supporting their validity (18). They differed on self-ratings and relative ratings of symptoms, routine clinical diagnosis and treatment setting. Moreover, there were highly significant differences regarding choice of medication in treatment. The present findings add a further dimension of predictive validity. Not only is treatment choice in a free choice situation related to typological groups, but in a situation where all patients are assigned one treatment the groups show different outcomes.

The results presented here concern a single, global outcome measure. However, separate analyses using the 13-point depression scale produced closely similar results. It is unlikely that the limited treatment response of anxious depressives simply represents a failure to measure the appropriate symptom. All patients showed a predominant symptomatic disturbance of depression, including the anxious depressives, who in addition to anxiety showed the highest scores of any group on a rating of expressed feelings of depression. Moreover, a global scale of illness involves overall assessment with all symptoms taken into account, and is therefore likely to be more sensitive than a specific symptom for measuring response across groups differing in symptoms. An alternative explanation might be that, since the anxious depressives were a more chronic group in the sense of having more previous episodes of illness, the poorer response might merely reflect their initial chronicity. This simple explanation can, however, largely be ruled out. In a separate analysis reported elsewhere (20) the improvement score was adjusted by analysis of covariance simultaneously for number of previous depressions as well as for initial severity. Prediction on the adjusted score remained significant.

A limitation of the study is that it involves only a single treatment and without a placebo group. It cannot be certain that specific effects of treatment with amitriptyline are being demonstrated; it may be that other drug treatments, or placebo, or untreated spontaneous remission, would result in a similar pattern. However, an additional finding suggests that the differences found between cluster-analysis groups were specific treatment effects. Scores on the outcome measure were available for each week of the four week treatment period. When mean scores for the four groups were examined, group differences were apparent not early, as might be expected from spontaneous improvement or placebo response, but in the third and fourth weeks, corresponding to the period when specific effects of amitriptyline are to be expected (10).

Psychotic and neurotic depression

A number of studies have been directed to the loosely overlapping psychotic-neurotic or endogenous-reactive dichotomies which are commonly used to divide depressed patients. These studies suggest that tricyclic antidepressants are more effective in psychotic or endo-

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genous than in neurotic or reactive depressives (2, 4, 8, 22). Good results have also been reported, however, in neurotic depressives (26) and in a group of anxious, phobic patients (9). Wittenborn (24) found that depressives in manic-depressive and involutional psychotic groups responded less well than those regarded as reactive; he also reviewed a number of other reports not supporting the better response of psychotic depressives.

The present findings for the four-group cluster-analysis typology initially appeared to confirm the predictive power of the psychotic-neurotic dichotomy. Certainly the psychotic cluster-analysis group corresponded closely to psychotic depressives as described in the literature. The anxious, hostile and young groups could all be regarded as neurotic, at least in showing some symptoms described as characteristic of neurotic depressives; and in the original sample, where data were available, in showing evidence of neurotic premorbid adjustment (17). The cross-tabulations of group membership in the present study confirmed this suspected overlap, which has also been demonstrated in the original sample (18).

In spite of the overlap, the psychotic-neurotic clinical diagnoses failed to predict improvement significantly. Although this analysis did not conform to a rigorous predictive design, it did not appear that the clinicians making the diagnoses at the end of treatment showed any strong biases. Indeed such biases might have been expected to lead to the use of psychotic diagnoses for patients who responded well, so as to produce positive findings, rather than the actual negative findings.

The most probable explanation for this discrepancy between the cluster-analysis typology and the clinical dichotomy appears to be that the former typology contains three neurotic groups rather than one. In both classifications these neurotic depressives comprised the majority of the subjects of this study; probably they are the majority of depressives in most treatment settings (19). Clinical experience suggests that these neurotic depressives are heterogeneous. The traditional diagnostic schemata have emphasized psychotic depressives and do not provide an adequate way of making distinctions among neurotic depressives. Both the International Classification of Diseases (27) and the American Psychiatric Association Diagnostic and Statistical Manual (1) provide several categories and sub-categories for psychotic depression and only one for neurotic depression.

It was the anxious depressives in the cluster-analysis typology whose outcome departed most strikingly from the remainder. On covariance adjusted scores, the other neurotic depressives—hostile depressives and young depressives with personality disorder—actually responded slightly better to treatment than did psychotic depressives. It would appear to be the capacity of the cluster-analysis typology to isolate the anxious depressives from the heterogeneous neurotic depressives that enables it to differentially predict outcome.

There is considerable variation in the kinds of patients treated in different treatment units (11, 19). Differences in the balance between anxious depressives, hostile depressives, and young depressives with personality disorder among the neurotic depressives in different studies might greatly effect the results of using the psychotic-neurotic dichotomy to predict. Further attention to the detailed characteristics of the neurotic depressives would appear very important for future studies.

Overall-Hollister typology

The cluster-analysis groups of anxious, hostile, and psychotic depressives (the latter scoring high on retardation) also appeared to overlap with the three groups reported by Overall and Hollister (15). However, contrary to expectation, the overlap in patient assignment, although significant, was relatively weak, and the Overall-Hollister typology did not predict response to amitriptyline.

Interpretation of these findings must be very cautious at this point. Further work in other and larger samples will be necessary before any firm conclusions can be drawn. So few patients in this sample were assigned to the group of retarded depressives expected to show the best response that their mean response could not be usefully calculated. In part this reflects the relatively small size of the present sample.

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In addition, although it has been used in other samples, the Overall-Hollister typology was developed on male depressives who were in-patients of Veterans Administration hospitals. The sample of the present study were all women, and predominantly out-patients. Previous work reported by Overall and Hollister clearly shows the predictive utility of their typology in male hospitalized samples (6, 15). It may be that the computer assignment procedure, or the groups themselves, were not valid in the present very different sample. The cluster-analysis typology was developed on subjects of both sexes and in various kinds of treatment facilities, including many out-patients. It would appear to have sufficient generality to apply to this particular sample, and group characteristics resembled those of the original study. It might not, however, be adequate in severely ill hospital samples, in which the mildly depressed groups would be poorly represented. Probably all statistically derived typologies are to some extent dependent on the characteristics of their samples. Comparisons in many and varied samples are desirable to test their effective limits.

The findings do indicate that the cluster-analysis typology has some predictive validity, although further validation in other groups against other treatments, and in comparison with other statistical methods for grouping, are required. The results support other work indicating a better response to tricyclic antidepressants of psychotic or retarded depressives and a poorer response of neurotic depressives. However, they suggest that the differential response is particularly a consequence of the poor improvement of the anxious depressives among the diversity of phenomena and patients subsumed under the inadequate label of neurotic depression.

Summary

Eighty-five depressed women were treated with amitriptyline for four weeks. Prediction of outcome was examined using three alternative depressive typologies.

The first typology was a classification previously derived by multivariate cluster analysis and comprising four groups: psychotic depressives, anxious depressives, hostile depressives, and young depressives with personality disorder. This typology predicted outcome significantly. Psychotic depressives showed the greatest improvement and anxious depressives the least, with the remaining two groups intermediate. When effects of initial severity were controlled for by analysis of covariance, the poor response of anxious depressives was the main finding.

Clinical diagnoses of psychotic and neurotic depression were also used to classify patients. These assignments overlapped with the cluster analysis typology, psychotic depressives corresponding in both typologies, while anxious depressives, hostile depressives, and young depressives with personality disorder all tended to be diagnosed as neurotic depressives. However, the psychotic-neurotic dichotomy did not significantly predict improvement, apparently because it failed to isolate the anxious depressives from the heterogeneity of neurotic depression.

Patients were also assigned to the three groups of retarded, anxious and hostile depressives previously described by Overall and Hollister. This typology overlapped, although somewhat weakly, in group membership with the four group cluster analysis typology. Prediction could not be tested adequately since there were very few retarded depressives in this sample.

The findings are consistent with other reports that neurotic depressives show worse response than psychotic depressives to tricyclic antidepressants, but indicate that the poor response is particularly associated with one group of anxious depressives within the heterogeneity subsumed in neurotic depression.

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