Rehabilitation in Patients
Undergoing Maintenance
Haemodialysis: Results of a
Questionnaire in 15 Dialysis Centres

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Rehabilitation in patients undergoing maintenance haemodialysis cannot be viewed in a conventional manner only (Bünger et al, 1971; Drukker et al, 1970; Nürnberg Symposium, 1971). The fact that a sufficiently dialysed patient needs approximately 30 dialysis hours/week, and on the other hand that the underdialysed patient (and a very significant number of patients are still underdialysed) must be considered as medically sick, has its implications on this problem. In addition, we all know from daily experience, that professional, medical and social rehabilitation may differ.

After having tested a standardised questionnaire (Strauch et al, 1970, 1971) in a pilot study with 42 patients in 3 dialysis centres, an improved questionnaire with 224 items relevant to the patients' environment (centre, family, social and professional area) as well as to his psycho-sociological situation (Meldrum et al, 1968) has been constructed in cooperation with the clinic of social psychiatry. For this study only such items have been selected which refer to the rehabilitation problem (33 items). The majority of items were right-wrong questions (1/2 score), some items were scaled (0,1,2 score), while others, referring to age etc had to be answered numerically. Only one doctor was responsible for the interviewing process. Analysis of data was done with the following statistical methods: mean values, standard deviations, intercorrelations, and canonical correlations.

RESULTS
A total number of 222 patients in 15 centres has been tested (Table I). Co-operating centres are: Bonn, Chirurgische Universitätsklinik, Med. Universi-


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Table I. Interdisciplinary study (nephrology-social psychiatry) in 15 dialysis centres, 1971

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Total number of patients tested</td>
<td>222</td>
</tr>
<tr>
<td>Number of patients analysed</td>
<td>178</td>
</tr>
<tr>
<td>(Incomplete questionnaires and patients with dialysis time less than 6 weeks were excluded)</td>
<td></td>
</tr>
<tr>
<td>Sex: male 125, female 53</td>
<td></td>
</tr>
<tr>
<td>Age of patients (years)</td>
<td>36.3±11.4</td>
</tr>
<tr>
<td>Dialysis time (months)</td>
<td>14.5±13.7</td>
</tr>
<tr>
<td>Number of dialyses/week</td>
<td>2.0±0.4</td>
</tr>
<tr>
<td>Duration of dialysis (hours)</td>
<td>11.3±6.5</td>
</tr>
</tbody>
</table>


Questionnaires of only 178 patients were analysed in the Mannheim Computer Centre. Incomplete questionnaires and those of patients with dialysis times less than 6 weeks were excluded.

The sex distribution shows 125 males as opposed to 53 females. The mean age of patients was 36.3 years. The mean duration of dialysis therapy was 14.5 months, the number of dialyses per week was 2.0±0.4 and the mean duration of an individual dialysis 11.3±6.5 hours.

PROFESSIONAL REHABILITATION

In order to judge professional rehabilitation by conventional standards in group 1 all patients were excluded who were not regularly employed and working before dialysis therapy was begun (housewives, students, invalids). Of these 139 patients (Table II) only 24% worked full time when this investigation

Table II. Professional rehabilitation after a mean dialysis time of 14.5 months

Of 139 patients who had a regular job before intermittent dialysis therapy:

- 24% worked 'full' time
- 59% were invalids
- 17% were out of work because of illness

- 26% wanted another job
- 3% were trained for another job
- 52% wanted to stay in the original job, but working less
- 84% considered their professional efficiency reduced

Intercorrelation calculations showed a high correlation between items:

full time working - educational level 0.339
was performed, 59% were invalids, 17% were out of work because of illness. Twenty-six per cent of these 139 patients wanted another job, but only 3% had been trained for a new job. Fifty-two per cent preferred to stay in their original job, but under lighter conditions, and 84% judged their professional efficiency as reduced. Intercorrelation studies showed interdependencies between educational level and professional rehabilitation; that is, the higher the educational level the higher the frequency of rehabilitation.

SOCIAL REHABILITATION

Concerning social rehabilitation a differentiation has been made between items relating to intra and extra familial areas (Table III). The degree of familial rehabilitation seems rather low. Sixty-five per cent of patients admit an increased dependency on their partner, 92% that family help is needed, and

Table III. 'Social' rehabilitation

1. Interaction (familial)
   - needing family help
   - increased dependency on partner
   - patient less exposed to family problems
   - family life reduced
   - understanding in family increased

2. Interaction (extrafamilial)
   a. active
   - still active in clubs
   - tendency to go out
   - appreciation for a dialysis club
   - likes visitors at home
   b. passive
   - reads newspaper regularly
   - sees television regularly
   - likes radio news regularly
   - wants exchange with other dialysis patients

41% that they are less exposed to family problems; data which indicate a general decline of prestige. In the extrafamilial area the decrease of social interactions is even more pronounced. Only 12% of patients for instance are still active in clubs, but in contrast the vast majority of patients show high interest in the public news media, activities with very little personal investment.

MEDICAL REHABILITATION

Our data indicate that only 26% of the patients believe that they feel as well as healthy subjects despite the fact that an improvement of physical well-being has been observed in 65% since the start of dialysis therapy (Table IV). This finding correlates well with the severity of symptoms, characteristic
Table IV. Mean values of items relating to medical rehabilitation (178 patients)

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of operations because of shunt complications</td>
<td>2.06-3.69</td>
</tr>
<tr>
<td>Feels as well as healthy subjects</td>
<td>1.264</td>
</tr>
<tr>
<td>Physical well-being improved</td>
<td>1.646</td>
</tr>
<tr>
<td>No appetite</td>
<td>0.416</td>
</tr>
<tr>
<td>Nausea</td>
<td>0.528</td>
</tr>
<tr>
<td>Vomiting</td>
<td>0.489</td>
</tr>
<tr>
<td>Severe constipation</td>
<td>0.702</td>
</tr>
<tr>
<td>Hiccup</td>
<td>0.652</td>
</tr>
<tr>
<td>Oedema</td>
<td>0.376</td>
</tr>
<tr>
<td>Sleeping problems</td>
<td>0.910</td>
</tr>
<tr>
<td>Fatiguability</td>
<td>1.129</td>
</tr>
<tr>
<td>Headaches</td>
<td>0.584</td>
</tr>
<tr>
<td>Muscle cramps</td>
<td>0.657</td>
</tr>
</tbody>
</table>

of patients with renal insufficiency. Using a standardised model, which has been developed by our group (Huber et al, 1970, 1971) we found that the degree of physical impairment was generally rather low compared to that of patients with compensated renal insufficiency; the exceptions were symptoms like fatiguability and sleeping problems.

**DISCUSSION**

In order to test the suggested three forms of rehabilitation (Professional, Social and Medical) we had canonical calculations done using two sets of variables, the first set consisting of items representing the three types of rehabilitation, the second set of items characterising the situation of the chronically haemodialysed patient. The first canonical correlation is 0.92 and significant at a level of 0.0009. The next orthogonal canonical correlation is 0.91 and has an error probability of 0.056. This has to be interpreted as being random, meaning that no significance has been reached. Analysis of these data allows two conclusions:

1. There is a highly significant relationship between the two sets of variables.
2. This relationship exists for one dimension only.

Analysing the standardised weights of the first canonical correlation we saw a non-systematic distribution of items with high weight of all three types of rehabilitation; in descending order these are: full time work, headaches, muscle cramps, desire to go out and solid familial ties for the first set; and for the other set: nobody is able to feel like a dialysis patient, day/night dialysis, feeling like a robot, bad sleep before dialysis, and number of dialyses/week.
SUMMARY

The following conclusions can be drawn. There is a big difference in the degree of rehabilitation in the three types. The highest degree is reached in medical, and only low ones in professional and social rehabilitation. On the contrary, statistical analysis does not allow separation of three clear cut types of rehabilitation since there are many dependencies between the three forms.

REFERENCES


Meldrum, W., Wolfram, J. G. and Rubini, M. E. (1968) Journal of Chronic Diseases, 21, 37


OPEN DISCUSSION

M McGEOWN (Belfast, Chairman): This paper shows something of the other side of the problem, from the point of view of the patient undergoing regular haemodialysis. It is somewhat disappointing that only 24% of the patients described here were at full time work, apparently in their original jobs.

P KRAMER (Göttingen): You have questioned 250 patients and I wonder how you obtained this figure of 2.0±0.4 dialyses/week. I assume that some of the patients have been dialysed three times a week and the rest have been dialysed twice a week. The average frequency should be more than 2.0 unless some patients have been dialysed only once a week. Are there patients being dialysed only once a week?

STRAUCH: Some patients in these fifteen centres are being dialysed only once a week.

K KOPP (Salt Lake City): I would like to make two comments. The first one refers to the state of dependency, particularly of home dialysis patients. We have found that it is best to train the patient alone for at least the first half of the training time. His partner, who is to be his attendant, steps in after three or four weeks and is in turn trained by the patient himself. These two people then go home and perform dialysis at home. The second comment I would like to make is a plea for greater interest in the sexual rehabilitation of the patients. I think this is very important, especially with home patients. We have encountered a considerable amount of marital trouble and difficulties with breaking of marriages, particularly of young couples, and think that this is certainly related to the degree of sexual rehabilitation.