# Psychiatric Observations on Patients Receiving Regular Dialysis Treatment

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Goodey and Kelley (1967), describing the social and economic effects of regular dialysis treatment, show that, though life is prolonged, rehabilitation is disappointing. There are no British reports on psychological factors in regular dialysis treatment, but several American reports have suggested that they can significantly affect successful rehabilitation.

## Aims and Method

This paper records psychological aspects of seven patients on regular dialysis treatment in a renal unit over a nine-month period. Admission was determined jointly by the dialysis team, using as criteria mainly the absence of associated non-renal disease, together with their assessment of patient and family stability.

Quinton–Scribner-type arteriovenous shunts were used routinely, and dialysis was carried out by means of the Kolff–Travenol dialyser with Chron-a-coils. Restrictions in diet and fluid intake were mandatory except during dialysis. Patients normally received two 12-hour periods of dialysis each week. Initially these were day sessions, but night dialysis became possible in the fifth month of the survey.

All but one patient was seen shortly after he or she had agreed to accept haemodialysis. Psychiatric assessment was made by one observer (I. C. M.) ; this often required several interviews because of the effect of serious physical illness. Where possible the relatives were also seen. Subsequent information was obtained in serial interviews.

Psychiatric help was not offered to patients or to staff. Whenever the physician felt the need for psychiatric advice a request was made to an independent psychiatrist. During the survey one patient was seen by him on three occasions.

## Case Reports

*Case 1.*—A 27-year-old salesman with a four-year history of chronic glomerulonephritis had not worked since starting regular dialysis treatment six months before initial psychiatric assessment. He insisted that he felt physically well except for a persistent itch, which had led to widespread excoriation. His attitude to work and to play was one of initial enthusiasm but little endurance. He liked to project an image of being an extrovert "man-about-town," but was nevertheless dismayed when just before psychiatric assessment his girl friend gave him up. His mother and maternal grandfather had suffered from depressive psychosis. Feelings of constant emotional tension, restlessness, irritability, and difficulty in getting off to sleep because of inability to relax, and latterly panic attacks, had been present for three months. He felt acute frustration rather than depression, "being left with nothing in life" and constantly aware his days were numbered. He was noticeably anxious when first seen, and during the period of survey became increasingly tense and on occasion suicidally depressed. Aggravation of his mental state was always related to the vicissitudes of treatment. Surprisingly, though the most anxious of the patients, he showed fewer symptoms during dialysis than the others. He seldom had headache and drowsiness during the procedure. He did, however, become restless, aggressive, and much more itchy. He often experienced post-dialysis lethargy for five to six hours, and spoke of treatment as "taking the guts out of me ; I feel dead, yet alive."

*Case 2.*—An 18-year-old single girl had a two-year history of chronic glomerulonephritis. At the initial interview she looked physically well ; her uraemic symptoms had all been improved by earlier peritoneal dialysis and dietary measures. She was an outgoing vivacious girl with a wide circle of friends and a keen sense of humour, and had been a cook. She spoke of her increasing fatigue over the previous 18 months, but also had an abrupt onset of anxiety and tension symptoms four months before admission. This anxiety reaction, unrelated to her physical condition, had been precipitated by a personal problem. It settled readily after superficial psychotherapy and did not recur. During dialysis she often experienced severe headache, difficulty in focusing, photophobia, and increasing drowsiness. After dialysis she complained of malaise and drowsiness for several hours.

*Case 3.*—A 48-year-old mariner, married but childless, gave a two-year history of chronic glomerulonephritis. His premorbid personality was stable. For 10 months before active treatment began he had become increasingly depressed and hopeless. Though more irritable and less interested in his personal appearance, his sleep was not disturbed. His wife stated that he had also been drowsy and emotionally labile. During this pre-dialysis period his physical state was poor. He was severely dyspnoeic owing to acidosis and severe anaemia. His hypertension (210/140) reacted sharply to guanethidine, small doses producing troublesome postural hypotension. On initial assessment he was cheerful, and had obviously derived much benefit mentally as well as physically from peritoneal dialysis. Much later he again showed evidence of depression—despite his denial of it. This depression seemed reactive in type : it began when increasing physical ill-health interrupted a rehabilitation course he was attending. He quickly improved when he obtained suitable employment near home. He gave the following account of his dialysis: "At first I feel fine, but later I develop a thick head and feel slightly sleepy. I become increasingly restless, tense, and irritable, and start to feel sick and usually vomit. By then I'm screaming to get off the machine. My whole inside is turning over. I'm tense and I can't keep still. I'm sure its doing my kidneys a lot of good, but it's not doing me much good." He often felt lethargic, more depressed, and nauseated, and at times vomited in the 48 hours after dialysis.

*Case 4.*—A 23-year-old farmer, the youngest of a large family, received considerable support from his fiancée. He suffered from chronic glomerulonephritis and malignant hypertension, first shown a few months earlier. His personality reflected the stoic yet superstitious phlegmaticism often seen in country folk. He felt he would have been more upset by the loss of a leg. When initially assessed his physical condition was very poor, and he had uraemic pericarditis. He showed no depression or other morbid reaction, and thereafter his mental state remained stable. He became noticeably aggressive during dialysis and often experienced post-dialysis nausea, vomiting, and drowsiness.

*Case 5.*—A 35-year-old mother of two children suffered from renal failure secondary to severe hypertension, first noted 12 years previously. Severely pre-eclamptic during both pregnancies, she had been on rauwolfia for two years before admission. She had felt downhearted and had lacked enthusiasm and energy for her day-to-day tasks. Sleep had been unaffected. Her history suggested a mild episode of depression seven years previously, after the birth of her elder child ; it resolved without treatment. Her premorbid personality was stable. When first seen her predominant mental state was one of delirium. Despite intensive dialysis and other treatment her physical condition deteriorated in the period under review. She continued to show an acute organic reaction, presumably

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in part based on uraemia, characterized by a fluctuating level of consciousness, disorientation, and marked memory disturbance, especially for recent events. Dialysis invariably increased her drowsiness and made her disorientation worse, especially for time.

*Case 6.*—A 30-year-old married vehicle driver had a 12-year history of chronic glomerulonephritis. He had always had a close relationship with his mother. He soon gave up promotion to charge-hand because of the extra responsibility. His wife, capable, lively, and probably the dominant partner, said that he had always been excessively uncommunicative, even to her, about personal problems and feelings. When first seen he looked physically well and complained only of tiredness and occasional tightness in his chest. His history was of increasing irritability, short temper, and malaise over the preceding year. Work had become a great strain, and his lifelong tendency to emotional lability had increased. Though he denied ever having felt depressed in his spirits, his sleep had been disturbed by early morning wakening for two years. Mental examination disclosed no abnormality. He had marked post-dialysis symptoms. These often began while he was on the way home. He developed dull frontal headache, became irritable, depressed, and tired, and wished only to sleep.

*Case 7.*—A 14-year-old girl presented with a two-month history of physical symptoms. She had advanced glomerulonephritis. Her premorbid personality seemed stable. In the three months before admission she became increasingly tired and apathetic, complained occasionally of severe occipital headache, and often vomited. She was noticeably irritable and disinterested, even in her own appearance, and was often reproved by her mother for her lack of co-operation. She denied feeling depressed. She was mildly disorientated. She often became drowsy and nauseated, and had visual upset during dialysis. On two occasions dialysis was followed by an epileptic convulsion; on a third occasion a convulsion occurred during dialysis.

Despite their denial of depression both Cases 6 and 7 showed a depressive type of reaction, as they deteriorated physically before active treatment began.

## Results

At initial assessment each patient showed, in varying degree, psychiatric evidence of an acute organic mental syndrome—namely, fatigue, drowsiness, apathy, restlessness, and irritability—and all except one (Case 6) had significantly impaired attention and concentration. During the survey every patient showed transient disturbances of emotion—usually moods of depression and frustration, and symptoms of anxiety clearly linked both to their physical health and to the smooth running or otherwise of the treatment situation.

The organic mental symptoms of chronic uraemia were not reversed completely, though they fluctuated greatly in intensity. In every case the dialysis process transiently aggravated some of these symptoms.

### Adaptation to Dialysis Regimen

The four patients (Cases 2, 3, 4, and 7) who accepted their illness more or less completely did better than the others. The ability psychologically to tolerate dialysis seemed to depend largely on personality. Attitudes of denial and dependency commonly led to problems of management. Thus Case 1 had the most shunt difficulty. He neglected its routine care despite his freely admitted fears about it. At one stage this neglect, coupled with his deception about his fluid intake and diet, resulted in a serious deterioration in his physical state. For these difficulties he blamed those engaged in his care. He saw his illness as excessive "punishment for past sins." He refused to consider help from the disablement resettlement officer of the Ministry of Labour, declaring, "I don't qualify. I'm not a cripple."

Where lives are run on borrowed time the need for lengthy periods in hospital cut off from home causes upset. A third patient (Case 6)—uncommunicative and superficially not noticeably upset by treatment—revealed his terror of it at interview, and was soon pleading to have his shunt removed. Perhaps the clue to this lay in his initial denial of the situation, as evidenced by uncommunicativeness, lack of physical complaints, and his eager claim that he did not brood.

### Causes of Conscious Anxiety

As Schreiner and Maher (1965) have observed, "dialysis for chronic renal failure involves the application of dramatic techniques to terminally ill patients in an emotionally charged atmosphere." Each patient must participate actively in treatment, accept severe dietary and fluid intake restrictions, and endure the discomforts associated with therapy. By current techniques he will rarely feel completely well and will have unpredictable periods of ill-health. Thus he may become very understandably anxious and apprehensive. The loss of libido and sexual potency, which sometimes appears, adds to the strain.

Return to constructive work is generally taken as the index that treatment has been worth while. If suitable work is not available when the patient is ready for it, disappointment and upset are intense.

### Shunt Problems

The patients had to devote considerable time and attention to shunt care, checking its function with a stethoscope every three to four hours, and, if necessary, using their own "declotting kit." The shunt tended to restrict movement of the limb, curtailed activities, and marriage partners slept uneasily lest they damaged it. Anxiety about shunt function increased as treatment continued and intensified as intercurrent complications led to the loss of successive shunt sites.

The coupling and uncoupling of the cannulae to the dialyser were the most obvious anxiety-producing events during dialysis. At these times three patients tried to appear unconcerned, but later one (Case 6) revealed his fear and tension by speaking of his desire to have his wife or mother with him, of his upset at seeing his own blood flowing within the tubes of the machine, and of his "relief" when the "ordeal" was over. Only one (Case 3) accepted it with composure.

### Renal Transplantation

It was unit policy to discuss the question of transplantation with the relatives, though not with the patient unless he himself raised the issue. This usually happened after the patient was well embarked on dialysis therapy, on the occasion of some physical setback. Transplantation was then held up as the ultimate goal.

With one exception none of the patients mentioned the possibility of renal transplantation to the psychiatric investigator during the survey. Patients rarely made any spontaneous reference to the artificial kidney machine either. Perhaps both topics were too threatening for discussion.

### Pruritus

A severe, persistent, generalized, and refractory pruritus, often leading to excoriation, occurred in five cases. It invariably became more intense during dialysis and contributed to the patients' irritability and restlessness.

### Sleep

Every patient experienced periods of sleep disturbance, usually an inability to initiate sleep, often despite sedatives. If this upset was entirely due to uraemia it should have been evident at the initial interview, but this was not so, except for one patient (Case 1) who, unlike the others, had by then been dialysed intermittently for six months. In fact he was the one most disturbed by this problem. Moreover, unlike the others, he did not become drowsy during dialysis. This response supports the observation of Shea *et al.* (1965) that the soporific effect of dialysis occurred unless the patient was particularly anxious.

### Staff Attitudes and Patient–Staff Relationships

The nursing staff were not especially selected for this type of work. At first the unit was manned by part-time female nurses, most of whom were married. Initially, also, physical conditions within the dialysis unit were poor. Every nurse complained of lack of space, of long hours of work, and erratic off-duty, and, though they clearly understood that the treatment was still in its infancy, they found the many changes hard to accept. Each nurse admitted her fear of the responsibility placed on her, and all felt mentally so exhausted each evening that their families complained. Friction increased as their grievances continued.

The change over from day to night dialysis brought less crowded conditions but more problems. In particular, the nursing staff reacted badly to the idea of working at night. The personal attitudes of all the various unit personnel were clearly very important. During treatment the patients became moody, irritable, more dependent, and less tolerant. These changes were outside their control. When things went wrong they protected themselves by blaming others, and in this context anti-staff aggressive comment was common. This imposed a heavy burden on all concerned. Three of the patients felt acutely anxious when left in the charge of a nurse who transferred her freely expressed anxiety to them. As a result, when a capable and confident nurse was left in charge one of these patients (Case 1) exploded into aggressiveness, self-pity, and hopelessness, though in fact all went well technically; but happily this difficult period of staff relationships eventually passed.

## Discussion

This survey suggests that psychiatric problems militating against a satisfactory attitude to treatment and to rehabilitation are common. Since treatment in the home is now being made available, personality and social factors are likely to assume even greater importance.

Our patients all showed emotional symptoms reactive to stress without developing frankly neurotic illnesses. Wright *et al.* (1966) found in their series that with increasing time on regular dialysis treatment the critical stresses stemmed from sources such as job changes or marital problems rather than from the procedure of dialysis. At least one dialysis unit (Johnson *et al.*, 1966) has not encountered appreciable psychiatric problems, which consequently may not be inevitable or irremediable.

A willingness to accept emotionally the full significance of the disease process as well as the restrictions and demands of the treatment given before haemodialysis begins, evidence of intelligent co-operation and participation during this period, and an ability to discuss freely anxieties and problems are favourable factors, whereas excessive use of the mental mechanisms of denial and dependency are not. These factors are likely to influence prognosis. Gombos *et al.* (1964) advocated the use of psychological assessment in the selection of prospective patients, but others found this to be impracticable (Cramond *et al.*, 1967). While selection must operate when dialysis facilities are inadequate, the more constructive policy must surely be to develop dialysis teams which can cope with the psychiatric accompaniments of the treatment.

The stresses imposed on relatives, the importance of family cohesion and stability, and the enormous rehabilitative value of gainful employment require medical social case work. A secure domestic background, the support of a sensible relative, and work which is both within the patient's reduced capacity and compatible with the demands of continuing, though intermittent, therapy are obviously favourable factors. Other workers have confirmed this (Shea *et al.*, 1965; Sand *et al.*, 1966).

Particular care should be taken in selecting nursing staff for these physically and mentally arduous duties. At present the registered general nurse is inadequately trained for this type of task. In the management of the patients' mental symptoms the nursing staff have a major role. They must be knowledgeable and efficient, able to engender in their patients feelings of security, and able to understand, accept, and tolerate the frustration, impatience, irritability, and aggression often directed at them. They must also be able to cope with their own anxiety and learn to avoid becoming too involved emotionally with their charges.

The need to anticipate and deal with excessive mental reactions, the dramatic features of the technique, and an emotionally charged climate which favours the development of many types of conflict in personal relationships all suggest that expert psychiatric assessment and advice would be helpful. Much might be gained short of this by using a comprehensive team approach to treatment. Regular conferences of the whole dialysis team, and perhaps some form of informal group discussion among the patients (involving a suitable member of the team), would promote the dissemination of information and lessen tension.

The indications for drug treatment for these mental reactions remain to be determined. Though such therapy must play only a very subsidiary part in the long-term management of symptoms, regular dialysis treatment is characterized by recurrent discomfort, and often pain, which require relief. In the long term the repeated use of potentially addictive drugs has dangers and disadvantages. Chlorpromazine and chlordiazepoxide have proved useful at times, but it is much more important that the staff should have ample time in which to listen to, talk to, and thereby support each patient through his difficulties.

Independently of the foregoing symptoms all patients showed intermittently a delirious or subdelirious reaction, which suggests that episodic organic cerebral dysfunction occurs during dialysis. This may be a consequence of the several solute and fluid transfers that take place. Kennedy *et al.* (1963, 1964) have shown that the rate of biochemical correction during acute and chronic haemodialysis influenced the electroencephalographic features and the occurrence of the "dysequilibrium syndrome." The psychological accompaniments of dialysis and of the immediate post-dialysis period merit further investigation.

## Summary

The results of a psychiatric survey carried out over a nine-month period on seven patients who were receiving regular dialysis treatment are presented.

All the patients showed emotional symptoms reactive to stress. Intermittent delirious or subdelirious reactions were seen and the patients often showed evidence of increased cerebral dysfunction during or just after dialysis. Assessment of mental status and previous personality was of value in understanding the responses to the illness and its treatment.

The role of the nursing staff is crucial, team approach in management is needed, the services of a medical social worker are valuable, and the psychiatrist has a role in treatment.

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# Q Fever in Northern Ireland

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Q fever has a world-wide distribution, but Ireland, Norway, Sweden, Denmark, Finland, Iceland, Belgium, and New Zealand are said to be free of the disease (Ormsbee, 1965).

A serological survey carried out during 1950–1 and 1953 on human and cattle sera in the Republic of Ireland showed the absence of Q fever infection (Kaplan and Bertagna, 1955), while in Northern Ireland a serological survey of Belfast abattoir workers and patients in 1957 showed that there was no Q fever infection in these people (Murray, Dane, and Dick, 1958). Between 1957 and December 1965 serological tests carried out on patients in Northern Ireland who had pneumonia, influenza-like illnesses, and pyrexias of unknown origin did not reveal any Q fever infections. It was not until January 1966 that Q fever was first diagnosed in Northern Ireland. This report describes the results of investigations which followed.

## Materials and Methods

*Serological Methods.*—Complement-fixation tests were performed by the technique of Bradstreet and Taylor (1962) with overnight fixation at 4° C and 2½ $MHD_{50}$ of fresh guinea-pig complement. The antigen used throughout was the same batch of the Nine Mile strain of *Coxiella burnetii* (phase 2). Initially some tests were carried out in parallel with the Henzerling strain of *C. burnetii*, but higher antibody titres were obtained with the Nine Mile strain. In patients suspected of having persistent Q fever infection *C. burnetii* antigen (phase 1) was used. The optimal dilution of antigen was determined from a "chessboard" titration with patients' convalescent serum. Sera were inactivated at 56° C. for 30 minutes, while animal sera and those human sera which were anticomplementary were inactivated at 60° C. for 30 minutes. The titre of a serum was taken as the highest dilution showing complete fixation of complement. A titre of 1:8 or higher in a single specimen of serum was regarded as evidence of past infection with Q fever, and a fourfold or greater rise in antibody between acute and convalescent sera as evidence of recent infection. Patients' sera showing evidence of recent infection with Q fever were also screened and titrated when necessary against the following antigens: influenza virus types A, B, and C, parainfluenza virus types 1 and 3, respiratory syncytial virus, adenoviruses, psittacosis-lymphogranuloma agents, and *Mycoplasma pneumoniae*.

*Isolation of C. burnetii from Milk.*—Two-millilitre samples of milk were inoculated intraperitoneally into guinea-pigs. Two guinea-pigs were used for each sample, and five uninoculated guinea-pigs were maintained in adjacent cages as controls in a room used only for these experiments. Living *C. burnetii* had not been isolated or used in the laboratory before. Daily rectal temperatures were taken. All guinea-pigs were bled before inoculation and again four and six weeks later. The sera were tested for the development of Q fever antibody.

## Results

### Index Patient

A 21-year-old student nurse developed pneumonia on 3 January 1966 and was in hospital for eight days. Serological tests on her sera showed a rising titre of Q fever antibody. Immediately before her illness she had worked in a general surgical ward, so that infection from a patient seemed unlikely. However, between 4 and 18 December 1965 she had been on holiday at home on a farm in eastern Co. Down, where there were Friesian cattle and crossbred and Dorset Horn sheep. At that time on several occasions the nurse washed her sheepdog, which was soiled after bringing bits of sheep placenta into the house.

### Farm Staff

The patient's sister (who was also a student nurse) and her father and mother had Q fever antibody in their sera. Both her father and mother had severe "influenza" in the autumn of 1965. In addition, 8 out of 11 workers on the farm had Q fever antibody in their sera and five of them had a history of "influenza" in the previous 18 months. The last influenza outbreak in Northern Ireland before this investigation was between January and March 1963, and no further cases of influenza were detected until January, February, and March 1966. The patient, the patient's family, and all but one of the farm staff drank the unpasteurized farm-bottled milk. Two veterinary surgeons who had attended pregnant sheep and cattle on the farm, and who had had their hands in the uterus of some of these animals, also had Q fever antibody in their sera.

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