

DISCUSSION

KLÜTSCH (Würzburg): I would like to contribute to the disequilibrium syndrome by demonstrating the differences in the extracellular compartments following haemo- and peritoneal dialysis.

We have checked the various substances: urea, creatinine, phosphorus, sodium, potassium, chloride, and calcium before and after haemodialysis in the serum and simultaneously in the pleural or the abdominal cavity by removing fluid. Following 24–36 hours' peritoneal dialysis, there was no difference between the pleural concentration of urea and the serum concentration, and the same applies also to creatinine, uric acid and the other substances, whereas following an 8-hour haemodialysis there was a distinct difference—the creatinine concentration in the pleural or abdominal fluid was higher than in the serum, and the same applies also to the uric acid and the phosphorus. So I think that following 36 hours' peritoneal dialysis the results we obtain in the serum are more representative of the concentration of these substances in the extracellular compartment than after 8 hours of haemodialysis.

SHALDON (London): I was interested, Dr. Rastogi, that the other solutes which are of importance in the uraemic syndrome will be studied. I think this really is the key to the matter, is it not, that the small molecules that we can study are probably not important, and the only thing that we do know is what we can derive from clinical empiricism at the moment. This worries me, therefore, that you are so confident that you will be able to study the solutes that are of importance. I would like to know what those solutes are.

RASTOGI (Newcastle): Your guess is as good as mine. We need to study creatinine and uric acid. The smallest molecules particularly urea are important as regards osmotic disequilibrium, and even the larger of these fairly small molecules are not so important for osmotic disequilibrium.

KOPP (Frankfurt): I am wondering at what intervals you measured your urea extraction during haemodialysis? It is very interesting to see, after the sharp decrease of the urea concentration in the blood at the beginning of the dialysis, that you have the same extraction per unit of time over the whole duration of dialysis, whereas blood concentration does not decrease at the same rate. That would suggest that the urea transport during dialysis between body compartments will change according to the concentration gradient which is established by the dialyser, and the blood concentration; so you can never have, for any given time, definite urea dialysance between blood and body compartments.

KERR (Newcastle): I think I may have understood Dr. Kopp's question; I think he said that our extraction rate was constant throughout the experiment although the urea was falling. In fact, the rate of urea removal by the artificial kidney was certainly not constant throughout the experiment. Furthermore, we did not find any 'steps' in the urea curve on the way down, but we may not have measured it sufficiently frequently during haemodialysis.

MAHER (Washington): I am not sure that you are justified in assuming that urea production remains constant post-dialysis. As you may know, several years ago John Merrill showed that urea production was increased during dialysis and this might be related to the accumulation of urea precursors, such as glycine, and I think if you have not measured these things that this is not a valid assumption.

Your failure to believe that the bromide space is representative of extracellular fluid is also of interest. We have an opportunity to answer whether or not this is an invalid measure-

ment, or whether it is truly a large space, if those doing transplants will look at bromide space immediately before transplant and then do a sodium balance in those that begin functioning immediately, and then repeat a bromide space after perhaps 48 or 72 hours. If the bromide space returns to normal and there is no negative sodium balance, then it is an invalid measurement. On the other hand, if the balance change would be appropriate, then you are measuring it validly.

KAPLAN DE-NOUR (Jerusalem): To the first lecturer a number of questions. You spoke of the whole group of 60 patients. Was there no difference in the psychiatric and psychological dysfunction of home dialysis and hospital dialysis?

Second question: You said that treatment should be modified to the patient. What are your criteria—psychological criteria—for choosing patients for home dialysis versus hospital dialysis?

Thirdly, we are now planning on home dialysis and our patients so far object very much to it. Is it just our own pampered patients, or do you find the same?

BAILLOD (London): I did not discuss the difference between hospital and home dialysis patients, because there is so much material that this would have taken another slide and a lot more time. The difference in our patients is that our hospital patients are all the earlier patients, and they were therefore subjected to more control and are very much more dependent than our recent home dialysis patients. I do not think that, on that score, they can be compared. If we took on hospital patients now and used the same approach to them as we do to our home dialysis patients, I think they would be comparable.

On psychological criteria for home dialysis, we have not applied any definite ones there. We came to the conclusion that we would do home dialysis for all patients. This is not the right treatment either—we have some problems, too—and it is quite obvious that some of these would do better on hospital dialysis. This was just a policy, not a selection.

To the last question, we do not discuss hospital dialysis with them, unfortunately, so they do not get the choice.

DE PALMA (Los Angeles): It has been our contention that haemodialysis is an artificial life-state. From the information that was collected, at least the way I interpreted it, chronic or maintenance haemodialysis is not an artificial life-state and people can return to a normal status. I do not think this is really true.

Secondly, the personnel that interpreted the data, I think, are probably highly involved in the unit that trains and sends these people home, and therefore a lot of this information was interpreted through their eyes, so that I think a lot of it is coloured. We have had on our unit a psychiatrist for the past two years who has been associated with us, but at a distance, and we have found that every patient has severe emotional maladjustment, most of them are dependent (and dependency may not be bad), and that our assessment of a competent person in the outside world may not be a competent person in a haemodialysis situation. I would like some comments on these statements.

BAILLOD (London): I agree with what you say. We do not think that we can get entire rehabilitation of the patients, and we did not classify anybody into Group I. We realised that it was biased, and I said this in the paper; we did also realise that in order to involve a psychiatrist at this stage when we had never involved one before, would require a tremendous amount of work and we certainly would not have been able to do this within the year with the number of patients that we had. So it is a biased report and it is the observation of two doctors, and you take it as you like.

SHALDON (London): I think this question of selection and psychiatric assessment is a very

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difficult one. I do not wish to cast doubts on the ability of psychiatrists, but as a practising nephrologist I find it extremely difficult to make an assessment of a chronically ill patient who has been ill for a number of years and who has become terminally ill and who is uraemic. I believe that there is an alteration in personality at the time that you see that patient and I do not believe that there is a psychiatrist who has a system which can allow for this. I think it is often a lottery how the patients subsequently turn out, and indeed they are often a product of their doctors and their environment. I do not wish to deny the value of psychiatric assessment but I think it should be interpreted, like so many things, with the benefit of mature clinical experience.