

## SEQUENTIAL HAEMODIALYSIS AND ITS INDICATIONS

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A certain number of patients set to chronic haemodialysis (HD) are superliquescent due to unproper regimen and diet, irregular series of haemodialysis, late beginning of HD, etc. All that requires a considerable dehydration of the

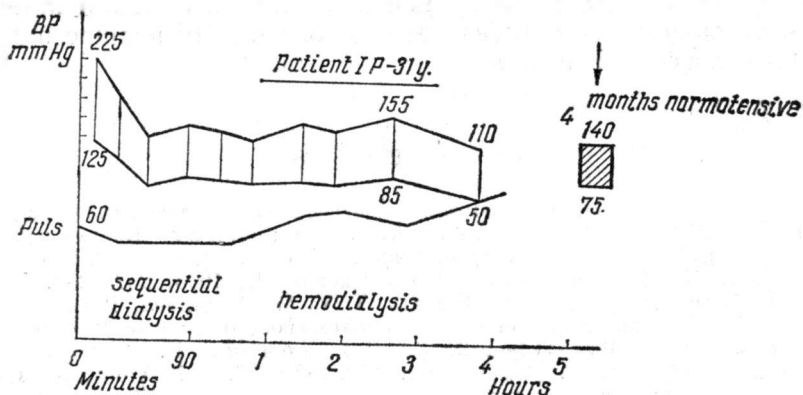


Fig. 1

patient in the course of HD which results in definite unfavourable additional side-effects and complications: collapse, headache, disequilibrium syndrome, muscle cramps, vomiting, etc. These complications can be easily eliminated by applying of the so-called «sequential HD» (synonyms: dry dialysis, ultra-diffusion, dry ultrafiltration). Sequential HD is an elimination of the tissue fluids by using of haemodialysis apparatus — capillary kidney or kidney of the type «shpulla» with increased filtration pressure but no current of any dialysis liquid (1, 2, 3). Thus, elimination of isotonic fluid is performed and this is the reason that patients set to sequential HD have no complaints. Besides, sequential HD provides additional elimination of substances with higher molecular weight off the plasma. It is another extra improvement of the condition due to the eliminated middle molecular weight molecules, i. e. main toxic substances in patients with uremia (1).

We applied sequential HD to patients set to HD-treatment; age between 1 and 5 years. HD was performed with capillary kidneys Hemoflo 1,3 m<sup>2</sup> (Fresenius). «Dry dialysis» was 1½ hour, thus eliminating 3,7 l filtrate; average blood-current of 250—530 ml/min. After the end of this «dry» dialysis the patients were subjected to HD (duration 5 or 2,5 hours). Fig. 1 shows the results of the sequential HD of one our patient. Ultrafiltrate of 3812 ml eliminates 8,14 g urea; 0,74 g creatinin; 0,35 g uric acid; 24,89 mEk potassium;

526,1 mEk sodium; 376,6 mEk chlorides; 9,45 mEk calcium; 8,8 mEk magnesium.

The hypertension of the patient — up to 220/110 mmHg is treated by 1—2 pills dopegit daily and normalizes at the end of treatment.

Analysing our 20 sequential HD we establish average elimination as follows: 3685 ml filtrate; 6,28 g urea; 0,51 g creatinin; 0,319 g uric acid; 18,43 mEk potassium; 482,78 mEk sodium; 369,73 mEk chlorides; 11,03 mEk calcium and 7,44 mEk magnesium.

Almost all patients restore at the beginning and in the course of the sequential HD; a certain number of them report no more itches which can be probably explained with decrease of parat-hormon and considerable elimination of phosphorus.

Some of our patients are subjected to a longer dry ultrafiltration (5 hours); as a result of that 12,5—14,0 l filtrate is obtained. This is very close to the effect of haemofiltration with the only difference that we apply the dialysis apparatuses. The method is applicable in every Department of Dialysis.

### Conclusion

Our data show that the sequential dialysis is applicable and suitable for all patients with superliquescence and higher percent nitrogen compounds at the beginning of HD. Isotonic tissue fluid removal (elimination) is easily accepted by the patients in comparison to the essential HD; the latter causes considerable loss of weight followed by muscle cramps, hypotonia or disequilibrium syndrome.

The sequential dialysis can be successfully applied to patients with hyperparathyroidism, polyneuropathia and arterial hypertension which can not be influenced by other means.

### REFERENCES

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### ИНДИКАЦИИ ПРИМЕНЕНИЯ СЕКВЕНЦИАЛЬНОГО ГЕМОДИАЛИЗА

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### РЕЗЮМЕ

Сообщаются результаты клинического применения секвенциального диализа у больных хронической почечной недостаточностью, находящихся на лечении посредством периодического гемодиализа.

Указывается на несколько индикаций секвенциального диализа: позднее включение больных на диализ, с наличием высокой задержки шлаков и с гипергидратацией; с гиперпаратиреонизмом; с полиневропатией и с неподдающейся лечению посредством диализа артериальной гипертонией.