

Personal Opinion

CAPD to improve quality of life in patients with refractory heart failure

Michal Elhalel-Dranitzki, Dvora Rubinger, Anka Moscovici, Yosef S. Haviv, Michael M. Friedlaender, Justin Silver and Mordecai M. Popovtzer

Nephrology and Hypertension Services, Hadassah University Hospital, Jerusalem, Israel

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Introduction

Congestive heart failure (CHF), mainly due to ischaemic heart disease, has become a common medical problem. As CHF worsens and reaches New York Heart Association (NYHA) class IV, many patients fail to respond to drug therapy. Conservative treatment includes preload and afterload reduction and administration of positive inotropic agents. However, patients suffering from CHF NYHA class IV tend to become progressively refractory to those therapeutic modalities. The kidneys in CHF avidly reabsorb sodium and water, leading to fluid overload [1]. These phenomena are secondary to decreased effective circulatory blood volume, decreased glomerular filtration rate, and increased release of neurohumoral substances favouring sodium and water retention [2].

In 1949 Schneierson introduced intermittent peritoneal dialysis for severe cardiomyopathy refractory to conventional therapy [3]. Since then peritoneal dialysis and other methods of ultrafiltration have been used as an effective short term therapy for severe CHF that fails to respond to drug therapy [4–9]. Short-term ultrafiltration improved fluid balance in most patients and enabled continuation of treatment either by medication or by surgical modalities. However, some patients with CHF class IV are refractory to conservative treatment and are not candidates for cardiac surgery or transplantation. These patients require frequent hospital admissions and suffer from very poor quality of life. Several authors tried to treat such patients with CAPD to remove excess of salt and fluid [7,9,11–15].

We wish to discuss this modality of treatment for severe CHF based on our experience in nine patients with NYHA class IV CHF.

The effect of CAPD on life quality was evaluated. The parameters examined were: (i) NYHA classifica-

tion of CHF; (ii) number and duration of hospitalization; (iii) number of drugs taken by the patients; (iv) complications related to CAPD, and (v) survival.

Nine patients suffering from CHF NYHA class IV were enrolled. All patients had significant residual renal function, none suffered from primary renal disease. Creatinine clearance at the inception of dialysis was 34 ± 4.4 ml/mm. All were males with a mean age of 60.3 ± 1.7 years. Bedside Tenckhoff catheters were inserted and CAPD was begun. Patients were evaluated for functional capacity and hospitalization days were recorded. Medications were adjusted as necessary.

Functional capacity (FC) improved in all patients. Mean FC before dialysis was 4. After CAPD it was 2.3 ± 0.2 . Hospitalization decreased from 78.7 ± 16.8 to 28.7 ± 17.1 days per year, and the number of medications decreased from 8.1 ± 0.7 to 5.1 ± 0.4 . All these changes were statistically significant. No major complications related to CAPD were recorded. Bedside Teckhoff was used effectively for more than 2 years. Mean survival time on dialysis was 17.3 ± 4.1 months for patients who died. Mean dialysis time for patients still on dialysis is 16.2 ± 0.7 months.

Five patients died; three from sepsis not related to peritoneal dialysis, one from massive myocardial infarction and one from sudden death at home.

Why use CAPD and not other ultrafiltration methods?

Ultrafiltration as treatment for heart failure has been shown in the past to be a successful short term treatment [4–9]. Some evidence indicated that ultrafiltration improves cardiac performance either by preload reduction or by removing some negative inotropic substance [16]. CAPD offers the opportunity to continue ultrafiltration on an out-patient basis in patients in whom cardiac failure did not improve sufficiently after short-term ultrafiltration.

CAPD has unique advantages as a method for ultrafiltration: fluid can be removed continuously, thus avoiding a decrease in blood pressure incurred by rapid fluid removal during intermittent haemofiltration in haemodynamically unstable patients. Another advantage of CAPD is the simplicity of the technique, and the ability to perform the insertion of the dialysis

Correspondence and offprint requests to: M. Elhalel-Dranitzki MD, Nephrology and Hypertension Services, Hadassah University Hospital, POB 12000, Jerusalem 91120, Israel.

catheter as a bedside procedure, without general anaesthesia. It can be performed even at home.

What does this treatment achieve?

Our experience as well as that of others [10,11] shows that CAPD improves the quality of life in heart failure patients and shortens hospital stay and thus is cost-effective. We cannot assess precisely the survival time, since neither we nor other authors followed a control group. Our results are in agreement with a previous report of König *et al.* [12], describing four patients in whom CAPD improved life quality, and with the findings of Ryckelynck *et al.* [11] and Stegmayr *et al.* [10] who described improved quality of life with CAPD.

Rubin and Ball in 1986 described eight patients with CHF treated with CAPD [14]. Although they reported improved control of CHF in all patients, hospitalization rate was not reduced. The difference between our results and those reported by Rubin and Ball might be related to improved techniques of CAPD in recent years and/or because of severely impaired renal function at time of enrollment (initial creatinine clearance 11.7 ± 2.7 ml/min) in these patients.

Social aspects

All patients had a very supportive spouse, and in all cases dialysis was performed, at least at the beginning, by the spouse. Because of their very poor general condition, patients were unable at the beginning to be independent and perform self-dialysis.

We propose CAPD as an additional therapeutic modality for uncontrolled CHF class IV. CAPD improves life quality, shortens hospitalization and decreases the number of drugs taken by the patients. Even in severely ill patients, a bedside Tenckhoff catheter can be used for prolonged periods with minimal complications.

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