Results are means ± SD.

**Estimated using the Cockcroft-Gault equation.

Mann–Whitney test.

Table 1. Evolution of renal function from randomization to the end of empirical antifungal treatment

<table>
<thead>
<tr>
<th>Serum creatinine</th>
<th>Early-switch group (n = 16)</th>
<th>Late-switch group (n = 15)</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before initial CAB treatment (μmol/l)</td>
<td>68 ± 14</td>
<td>67 ± 12</td>
<td>0.75</td>
</tr>
<tr>
<td>At randomization (μmol/l)</td>
<td>109 ± 24</td>
<td>108 ± 21</td>
<td>0.81</td>
</tr>
<tr>
<td>Change from randomization to the end of treatment (%)</td>
<td>−2.3 ± 15.9</td>
<td>+16.2 ± 27.6</td>
<td>0.04</td>
</tr>
<tr>
<td>Serum creatinine clearance**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before initial CAB treatment (μmol/l)</td>
<td>116 ± 36</td>
<td>122 ± 35</td>
<td>0.54</td>
</tr>
<tr>
<td>At randomization (μmol/l)</td>
<td>74 ± 30</td>
<td>77 ± 26</td>
<td>0.69</td>
</tr>
<tr>
<td>Change from randomization to the end of treatment (%)</td>
<td>+3.7 ± 19.9</td>
<td>−10.3 ± 37.5</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Duration of hospitalization was 14.9 days in the early switch group and 25.1 days in the late-switch group (+68% compared with early switch group; P = 0.13). In the late-switch group, renal toxicity resulted in an increased hospitalization duration (from 4 to 10 days) in 3 patients (vs. zero patients in the early switch group). In the early switch group, no patients were given dialysis vs. one patient that required two sessions in late-switch group. The cost of drugs was significantly lower in the late switch (−65%; P = 0.004) compared with the early-switch group. Although the total cost per patient, including duration of hospitalization from randomization to hospital discharge, dialysis sessions and study drugs, was lower using the early switch strategy (15 729 euros) than in the late switch strategy (19 785 euros), this difference did not attain statistical significance. Thus, the increase in hospitalization duration caused by CAB appears to cancel out the higher initial cost of L-AmB treatment.

In conclusion, this study showed that if even moderate nephrotoxicity develops during CAB treatment, it continuously worsens and sometimes at a very rapid rate. Moreover, these findings suggest that an early switch from CAB to L-AmB as soon as moderate nephrotoxicity appears as well as close monitoring of renal function could preserve renal function and shorten the chemotherapeutic programme of the patient. Finally, the economic data indicate that the early switch strategy is cost-effective because it reduces hospitalization duration.

Conflict of interest statement. G. D. is consultant for Gilead Sciences and L. M. is an employee of Gilead Sciences.

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Assisted peritoneal dialysis—an evolving dialysis modality

Sir,

The first international meeting focused entirely on assisted peritoneal dialysis (aPD) was held in Copenhagen at the end of September 2006. The aim of this meeting was to share experiences of local aPD programmes. The individuals concerned had developed aPD because of the increasing proportion of frail elderly patients starting on dialysis. In the UK, 80% of patients over the age of 65 are on haemodialysis (HD) at 90 days, compared with 64.3% of patients less than 65 years old [1]. In contrast, in France where aPD has been available for many years, PD is predominantly a treatment of the elderly, with 54% males and 59% females on PD in January 2006 being over 70 years of age [2]. Of 11 744 French PD patients treated in the last decade (January 1995–January 2006), 56% received assistance, predominantly from a community nurse. In Denmark, where aPD has been developed more recently, the use of community nurses to assist with PD enables such individuals to have their treatment at home and expands the proportion of patients able to have PD [3].

Models of assisted PD

There were presentations from dialysis centres in six different countries (Denmark, France, Netherlands, UK, Norway, Sweden), many of whom had developed different models of care. The techniques used are summarized in Table 1. In France, non-disconnect Continuous Ambulatory Peritoneal Dialysis (CAPD) with UV-flash is the predominant method used, as this greatly shortens the time needed for the nurse visit—the nurse phones the patient, or a relative, to start the drain procedure so when she arrives she just has to remove the old bag and connect the new one, leaving the fluid to drain in and the patient to fold up the bag after her departure. Indeed, assisted PD is often the modality of choice for older patients [4]. In other countries, Automated Peritoneal Dialysis (APD) is used as the PD modality for assisted patients with two visits from the nurse—a longer visit in the morning when the patient is disconnected from the machine, the old bags removed and new ones placed on the machine; in the evening there is a shorter visit when the patient is connected to the machine.

Training of assistants

Surprisingly, nurse PD assistants seem to require remarkable little training. In France, where there is the greatest
experience, private community nurses receive only a half day of training from the PD unit at the initiation of treatment. PD is only a small proportion of their job; the primary nurse for a patient may then often train other nurse colleagues herself. In Denmark, training is equally short—2.5 h theoretical training and 2.5 h from a PD nurse with the patient in their home. In the UK, when healthcare assistants were used, training consisted of 3 days in a Baxter training centre, titical training and 2.5 h from a PD nurse with the patient in herself. In Denmark, training is equally short—2.5 h theore-

dical training and 2.5 h from a PD nurse with the patient in

Country & Delivery of APD & Number of patients

<table>
<thead>
<tr>
<th>Country</th>
<th>Delivery of APD</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>CAPD and APD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Denmark</td>
<td>APD with community nurses to patient’s home.</td>
<td>Not available.</td>
</tr>
<tr>
<td>France</td>
<td>27% CAPD double bag, 60.7% CAPD with UV-flash, 12.3% APD. Community nurses to patient’s home.</td>
<td>62 patients; 8% total PD population; 2-40% PD patients in centres offering APD.</td>
</tr>
<tr>
<td>Netherlands</td>
<td>CAPD using nursing-home staff.</td>
<td>42 (10 in nursing-home); 23% total PD population.</td>
</tr>
<tr>
<td>Norway</td>
<td>57% APD; 43% CAPD.</td>
<td>42 (10 in nursing-home); 23% total PD population.</td>
</tr>
<tr>
<td>Sweden</td>
<td>APD with community nurses to patient’s home.</td>
<td>62 patients; 8% total PD population; 2-40% PD patients in centres offering APD.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>APD with one visit from health care assistant to patient’s home; patient and/or family responsible for connection in evening and disconnection in morning.</td>
<td>9 patients in 1 centre (all existing PD patients).</td>
</tr>
</tbody>
</table>

Peritonitis rates

‘The proof is in the pudding’. Although assisted PD using assistants with minimal PD training seems a risky business, peritonitis rates are not high, varying from 1/25 to 1/36 patient-months at the various centres. Rates are higher than self-caring patients, at least in Denmark where the median peritonitis-free period is about a year for assisted patients and two and a half years if self-caring. This may partly be due to the assisted patients being much sicker and having more comorbidities. Interestingly, in France, peritonitis rates are lower in centres where PD nurses periodically visit the patient at the same time as the community nurse (and thereby provide some retraining)—1/45 patient-months, compared with 1/35 patient-months when there are no such visits [5].

Reimbursement

In Europe, specific funding for aPD only exists in Belgium, Denmark, France and one region of Spain. In France, private nurses are directly paid 11.6 € per exchange by the Public Health Care Insurance, with extras for monitoring, dressings and travel expenses; for APD this amounts to 1700 €/month and for CAPD to 2100 €/month [6]. In Belgium, the home care nurse receives 103 €/week (5.356 €/patient-year) for APD and 180 €/week (9.360 €/patient-year) for CAPD; this is paid by the renal centre, which gets a proportionally higher reimbursement fee from the government [7]. In Denmark, district nurses are paid 54 €/h with an estimate of 50 min spent daily at the patient’s home; this amounts to 16 178 €/year. In Spain, only the Canary Islands reimburse aPD; this is at 20 €/day or 7 280 €/patient-year without differences between CAPD and APD. Still, it is not more expensive than in-centre HD [8]. These rates clearly vary widely, with no sensible correlation between cost of PD and cost of assistance.

Conclusion

Aiming for an optimal quality of life for patients should be the key factor when considering choice of dialysis modality. This is particularly true for older patients, whose life expectancy is short. Enthusiasts in many European countries are carrying out aPD. It is only officially recognised as an entity in a few countries the but where costs exist, it would appear that the total cost of aPD is less than haemodialysis, particularly when the cost of transport is included. We are facing an ever increasing number of frail elderly people starting on dialysis; there is enough evidence about the success of aPD for it to be recognized and its use encouraged as a dialysis modality.

Conflict of interest statement. None declared.

1. UK Renal Registry Report 2005, UK Renal Registry, Bristol UK
7. Moniteur belge du 28 mars 2006; 99: 17472

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