Implementation and maintenance of a successful Home Hemodialysis programme: a 40-years experience

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May, 2014
Renal Replacement Therapy modalities in Belgium

Incident patients 2000-2011

Bar chart showing the number of incident patients for different modalities from 2000 to 2011.
Renal Replacement Therapy modalities in Belgium

Hemodialysis

Schedule: Most commonly, 3 x 4 hrs/week, in-center or «autodialysis»

Procedure: well established, efficient, safe

Disadvantages:
- Fixed timing
- Travels
- Nosocomial risks
- Costs

Selfcare dialysis modalities
Key factors for success of Home HD

Pre-Dialysis Education Programme

Patient training

User’s friendly dialysis machine

Dialysis at home “à la carte”

Patient support & follow-up / Logistics
Avantages early information (PDEP)

- Decrease mystique around dialysis
- Provide objective information
- Help make treatment choice
- Promote self care
Pre Dialysis Education Programme: experience UCL (Avril 2014)

- Home HD (n=50): 48%
- Self-care HD (n=23): 12%
- PD (n=24): 13%
- In-center HD (n=90): 27%

Goovaerts T. et al. Nephrol Dial Transplant 2005
### Table 1. Preferred Versus Actual Dialysis Modality

<table>
<thead>
<tr>
<th>Modality Preferred During PDEP</th>
<th>Self-care In-Center HD</th>
<th>Home HD</th>
<th>PD</th>
<th>Total Self-care</th>
<th>In-Center HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-care in-center HD (n = 12)</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Home HD (n = 24)</td>
<td>0</td>
<td>18</td>
<td>1</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>PD (n = 45)</td>
<td>3</td>
<td>0</td>
<td>34</td>
<td>37</td>
<td>8</td>
</tr>
</tbody>
</table>

*Note: N = 81.*

Abbreviations: HD, hemodialysis; PD, peritoneal dialysis; PDEP, predialysis education program.

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Differences between dialysis modality selection and initiation

“Booster injections”
Families
Epo and iv iron
HD Technician et PD delivery technician
Other patients
Social worker

Eerste Belg met een eigen kunstnier thuis

Negen maanden oefenen voor bedienen van apparatuur

Wanneer U "geblaseerd" bent, blijft U nog het exotisme!

CEYLON FOTO-SAFARI IN KENYA

Kleine cliniek

Opgeroepen
Patients training
Patients training

Theoretical section

How dialysis works: diffusion, ultrafiltration...

Dry body weight, hyper-, hypovolemia

Diet

Interpretation of blood results

Medications

Interpretation of symptoms .......
# Patients training

## Practical section

<table>
<thead>
<tr>
<th>Weight</th>
<th>Needling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure</td>
<td>Setting UF, heparine rate</td>
</tr>
<tr>
<td>Preparation needles/ seringes</td>
<td>Log sheet</td>
</tr>
<tr>
<td>Starting up machine</td>
<td>Rinse back</td>
</tr>
<tr>
<td>Building up dialyser &amp; bloodlines</td>
<td>Dismantling</td>
</tr>
<tr>
<td>Priming</td>
<td>Hypotension</td>
</tr>
<tr>
<td></td>
<td>Puncture problems</td>
</tr>
<tr>
<td></td>
<td>Power failure</td>
</tr>
</tbody>
</table>
Training model based on behavioural psychology
(5 steps)

Setting expectations, objectives for the learner

Explaining why skills are being taught

Demonstrating the skills to learner

Practising by the learner with feedback from the teacher

Real situation
1. Presser sur la touche "M/A" durant 3 sec. jusqu'à ce qu'elle s'allume.
2. Vérifier si la machine fait ses tests: FC3….FC6, FCH apparaissent.
3. La phase de test est terminée lorsque "AMORCAGE" s'allume.
Le matériel pour le champ

<table>
<thead>
<tr>
<th>Composant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sérum physiologique</td>
<td>30 ml, 27 ml + 3 ml héparine, 18 ml sérum + dose charge, 20 ml sérum</td>
</tr>
<tr>
<td>Héparine</td>
<td></td>
</tr>
<tr>
<td>Hibitane</td>
<td></td>
</tr>
<tr>
<td>Grand Sparadrap</td>
<td></td>
</tr>
<tr>
<td>Petit Sparadrap</td>
<td></td>
</tr>
<tr>
<td>Aiguilles</td>
<td></td>
</tr>
<tr>
<td>Art. Aiguilles</td>
<td></td>
</tr>
<tr>
<td>Vein. Aiguilles</td>
<td></td>
</tr>
<tr>
<td>Aiguille</td>
<td></td>
</tr>
</tbody>
</table>

Le set

© Ph.Cougnet: Dialyse Extra-Hospitalière, U.C.L. St Luc, Bruxelles, 2001
Ideal self-care machine

Small
Safe
Silent
Specially designed for self-care
Minimum of manipulations
No partner
Suitable for “individual” treatment
High dose dialysis

Source: JP Benain; Simon-Kucher & Partners 2013
High dose dialysis

Chertow et al., NEJM 2010; 363: 2287-2300
Survival in daily home HD and matched thrice-weekly in-center HD patients

1873 patients home HD quotidienne (NextStageOne) appariés avec 9365 patients HD en-centre (1:5 ratio) sélectionnés de la population du USRDS

Intensive HD associates with improved survival compared with conventional HD

338 patients en home HD intensive (> 5.5 heures, 3-7 fois/sem) du IQDR (Fr, US, Ca, 2000-2010)

1388 pts témoins en HD conventionnelle en-centre provenant de DOPPS matchés

13% diminution ds le risque de mortalité

45% diminution ds le risque de mortalité


Par courtoisie J Morelle
Patient support & follow-up / Logistics

Back-up dialysis
On call service
Outpatient clinic
Home visits
Correspondance

Deliveries
Waste
Technical service
  - Assessment of environment
  - Plumbing & electrical wiring
  - Equipment maintenance & repair
  - Sampling
  - Replacing filters
Patient support & follow-up / Logistics
Where do the patients come from?
40 years Home HD experience

Nephropathy

- 48% Other
- 19% CGN
- 15% ADPKD
- 13% ICN
- 3% Diabetes
- 2% Vascular

Other causes of Nephropathy:
- Diabetes
- Vascular
- Other
## 40 years Home HD experience

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N (patients)</td>
<td>(49)</td>
<td>(65)</td>
<td>(38)</td>
<td>(94)</td>
<td>(246)</td>
<td></td>
</tr>
<tr>
<td>Age at first HHD</td>
<td>46 (19-67)</td>
<td>44 (21-69)</td>
<td>42 (16-71)</td>
<td>42 (15-79)</td>
<td>43 (15-79)</td>
<td>NS</td>
</tr>
<tr>
<td>Charlson comorbidity*</td>
<td>2 (2-8)</td>
<td>2 (2-7)</td>
<td>2 (2-7)</td>
<td>2 (2-10)</td>
<td>2 (2-10)</td>
<td>NS</td>
</tr>
<tr>
<td>Residency (%)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartment</td>
<td>6.4</td>
<td>6.2</td>
<td>10.5</td>
<td>26.6</td>
<td>14.8</td>
<td></td>
</tr>
<tr>
<td>House</td>
<td>93.6</td>
<td>93.8</td>
<td>89.5</td>
<td>73.4</td>
<td>85.2</td>
<td></td>
</tr>
<tr>
<td>Location for HHD (%)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated room</td>
<td>32.6</td>
<td>21.5</td>
<td>15.8</td>
<td>12.8</td>
<td>19.5</td>
<td></td>
</tr>
<tr>
<td>Bedroom</td>
<td>38.8</td>
<td>7.7</td>
<td>10.5</td>
<td>35.1</td>
<td>24.8</td>
<td></td>
</tr>
<tr>
<td>Living room</td>
<td>24.5</td>
<td>67.7</td>
<td>68.3</td>
<td>48.9</td>
<td>52.0</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>4.1</td>
<td>3.1</td>
<td>5.3</td>
<td>3.2</td>
<td>3.7</td>
<td></td>
</tr>
</tbody>
</table>
AVF represent 92.2% overall but only 81.9% during the last period

AVF cannulation was mainly performed by family member until 1990, but self cannulation concerned 51.1% of patients after 2000!

82% of AVF did not require intervention

After 1997, the use of the buttonhole technique became systematic. Infection, stenosis and pseudo-aneurysms rates remained unchanged despite more frequent dialysis (0.34, 0.01, and 0.03 case/100patients/months)
Conclusions

The influence of a Pre-Dialysis Education Programme is crucial

By giving choice to patients and supporting their decision making, most will initiate RRT according to their initial preferences and opt for an alternative self-care modality

Offering all modalities and leaving the choice to the patients lead automatically to an optimal distribution

All treatment modalities are complimentary and NOT in competition

The development of a Home HD programme should rely on dedicated teams involved in training, education and technical and logistic supports
40 years Home HD experience
40 years Home HD experience
Mr T Goovaerts et Ph Cougnet

Nursing Dialyse Extra-Hospitalière (DEH)

Équipe technique

Dr Johann Morelle

Prof M Jadoul

Néphrologues du service et d’autres hôpitaux qui réfèrent des patients pour prise en charge extra-hospitalière