PEDIATRIC NEPHROLOGY 2007 STATUS IN BALTIC COUNTRIES: SITUATION ANALYSIS AND RECOMMENDATIONS

VAIKŲ NEFROLOGIJOS BŪKLĖ 2007 METAIS BALTIJOS ŠALYSE: SITUACIJOS ANALIZĖ IR REKOMENDACIJOS

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ABSTRACT
Article shortly reviews development of pediatric renal replacement therapy in three Baltic countries. Special attention is put on peritoneal dialysis for children and it's priorities, reimbursement of the procedure and their differences, adequacy to European Union guidelines, human resources in this field. Multidisciplinary approach is lacking in all three countries: pediatric nephrologists are working without the support of psychologist, dietitian and social workers.

SANTRAUKA
Straipsnyje apžvelgiama vaikų pakaitinės inkstų terapijos raida trijose Baltijos šalyse. Ypatingas dėmesys atkreiptas į peritoneinės dializės privalumus vaikams, procedūros apmokėjimą ir jų skirtumus, atitikimą Europos Sąjungos rekomendacijas, žmogiškusius išteklius. Pabrėžiama, kad nė vienoje šalyje nėra daugiaprofiškų specialistų komandas: vaikų nefrologų kartu su psichologais, dietologais ir socialiniais darbuotojais.

INTRODUCTION
The Baltic Pediatric Peritoneal Dialysis Forum (BPPDF) was founded on February 9, 2007 as the coordinative and consultative institution represented by leading pediatric nephrologists of the main pediatric nephrology hospitals of the Baltic States.

The aims of the BPPDF include, but are not limited to:

▪ To promote science and practice of pediatric nephrology in Baltic countries;
▪ To improve and maintain the quality of pediatric nephrology services in Baltic countries;
▪ To assist in developing modern pediatric nephrology educational programmes, professional competence and institutional issues in Baltic countries;
▪ To coordinate and where feasible, to unify and/or standardize the common issues, including education, science, statistics, and more specific health care issues such as therapy and quality protocols, meetings, recreation, etc.;
▪ All of the above activities are based on the valid EU recommendations1.

The first BPPDF activities were mainly devoted to the educational needs (Vilnius, Lithuania, February 10, 2007 and subsequent sessions), but simultaneous work was done on analyzing the current healthcare policies of each Baltic country, which directly affect the quality and practice of pediatric nephrology, including but not limited to renal replacement therapy, and peritoneal dialysis in particular.

The above analysis showed some discrepancies between countries as well as differences from current European and worldwide tendencies and recommendations1.

In this article we present the shortened version of analysis results intended for the specialized health care planning, hospital policy development and other practical applications as regional guidelines till the currently developing Eu-

PERCENTAGE OF BEDS DESIGNATED FOR PEDIATRIC NEPHROLOGY IN PEDIATRIC HOSPITALS

This parameter is not clearly defined and depends on too many variables, including but not limited to:

- Hospital size;
- Hospital type
  - strictly pediatric or mixed with adults;
- Hospital structure
  - how many multiple disciplines are present and/or available;
- The proximity of other centers providing the necessary adjuvant pediatric tertiary care;
- Hospital organizational principles
  - designated or „specialized” pediatric nephrology beds in specialized wards/departments vs. multiprofile ones with beds „available” for pediatric nephrology, etc.

CONCLUSION

Due to the above multivariable, this parameter cannot and should not be compared and no conclusions can be drawn (Picture 1).

PEDRIATRIC NEPHROLOGY BEDS PER COUNTRY POPULATION

There are no current unified recommendations within the EU on the required number of pediatric nephrology beds (PNB) relative to either general or pediatric population, and rare suggestions range from 10–12 to 15–20 PNB per 1 million total population (PMP), with high-end recommendations coming mostly from Germany.

The above numbers are highly dependable of the primary care status such as pre-hospital investigations availability, primary care competence level, etc.

However, taking in account the manpower requirements (see further), the corresponding number of beds assigned to pediatric nephrology (whether specialized or available) should fit within 12–15 PNB per 1 million total population (PMP) range (Picture 2).

CONCLUSION

This issue is less important and probably is not applicable to multiprofile wards or departments (with beds available, but not specialized for pediatric nephrology), but it is highly important and can be defined as mandatory for the specialized ones, especially in hospitals, where the renal replacement therapy units are incorporated in the nephrology wards, as proposed by later European guidelines.

Baltic countries have rather high discrepancy, with Lithuania the best fitted.

There are clearly not enough pediatric nephrology beds in Latvia.

It may seem there are too many beds in Estonia, but the later is evidently the false alarm, since Estonia has different hospital organizational principles (available, but not specialized beds).

This issue requires urgent attention from Latvian authorities.

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2 The translation of this document to member state languages is advisable, providing the mandatory application of the original English version in case of different interpretation.
PEDIATRIC RENAL REPLACEMENT THERAPY (RRT) MODALITIES

The peritoneal dialysis (PD) has long been established as leading pediatric RRT modality in Europe. Even in early 1990-ies, it contributed to 25% of all pediatric RRT and became clearly prevalent in late 1990-ies. Nowdays, it is generally recognized as the first choice pediatric RRT and in many countries and selected pediatric centers, PD virtually replaced hemodialysis (HD) – see the particular Latvian example above (Picture 3). The rapid growth of PD contributes to following factors:
A. Much lower total treatment costs (though supplies cost the same) due to less hospital-related expense
B. Better survival rates and transplantation results
C. PD, especially the automated PD, is the first choice pediatric RRT modality
D. PD is a continuous therapy, which requires neither anticoagulation nor vascular access, and can be used in hemodynamically unstable patients.
E. PD can be performed in units with no HD expertise and is effective in children of all ages, including neonates.
F. Newborns with respiratory diseases, even if on ventilatory treatment, can be treated with PD.
G. PD, and especially APD provides the best life quality for active patients, allowing them to learn and to work with minor or no limitations.

CONCLUSION

Lithuania stands quite opposite to the above tendency, which is certainly unique and probably abnormal.

The plausible causes of this phenomenon are addressed further in this Memorandum.

PEDIATRIC RRT MODALITY CHOICE AS AFFECTED BY HEALTH CARE POLICIES

While analyzing the above described Lithuanian anomaly, the reimbursement analysis was done (see the graph below), which showed the evident case of wrong (or, more correctly – nil) reimbursement for key PD activities (Table 1).

The other two Baltic countries were surprisingly similar in those policies, though some details were slightly different and in Estonia, only one issue seemed either wrong or insufficiently explained (higher reimbursement of adult PD per day, while pediatric PD in material costs is at least equal to adult PD and in many cases even more expensive due to bigger amounts of dialysate needed for growing children and adolescents).

CONCLUSION

The reimbursement policy for PD in Lithuania should be urgently reassessed and set on equal terms and same principles with other RRT modalities, providing the adequate reimbursement policy, which should also allow dynamic (immediate) prescription changes according to clinical necessity, including
A. Dialysis solution choice according to EU guidelines
B. Modality choice (e.g. APD) according to EU guidelines

While further analyzing the Lithuanian “anomaly”, the RRT choice analysis was done (Table 2), which again showed another evident case of probably wronged health policy.

RRT modality choice, neither for medical professionals nor for patients is free in Lithuania. It means, both medical preferences and ethical considerations seem to be bluntly ignored, thus directly violating a couple of basic medical principles and international agreements.

6 See the applicable European guideline list at the end of the document.
Both in Estonia and Latvia (as in the rest of the EU), pediatric RRT modality is a free choice made by a patient with medical professional advice, and are reimbursed de facto with no limitations set.

**CONCLUSION**

The reimbursement policy for PD in Lithuania should be urgently reassessed, providing
A. Free choice for patients (patient’s prevalence should overrule the medical preference)
B. Free choice for medical professionals (pediatric nephrologists) by best clinical judgment
C. No limitation policy at least for children

**MANPOWER ISSUES IN PEDIATRIC NEPHROLOGY**

Manpower necessary to run the pediatric nephrology arises directly from the current European pediatric nephrology service requirements: a 7 days per week, 24 hour service to deal with acute and chronic dialysis related problems, acute renal failure, renal transplantation, and support of other acute medical and surgical specialties. Pediatric nephrologists in Europe are required to cope with: on-call commitments; education and training; audit; clinical governance; continuing professional development; European Working Time Directive; shortage of multiprofessional support staff. The above requirements in practice mean the maximum of six patients daily per nephrologist (five in university hospitals). The best available recommendations, accepted in EU and many countries worldwide, come from the United Kingdom.

It means that either there is a service, which meets the requirements, or there is no recognizable service. To provide such service the following absolute minimum is required:

A. Fellows (in Baltic countries mostly called attending physicians)
   a. Four full-time employed (FTE) specialists per centre or
   b. At least 2 FTE per 1 million total population (PMP)
B. Consultants (provided the units are already fully staffed with fellows)
   a. One consultant per 345.000 children under the age of 15 years or
   b. Approximately 1 consultant per 255.000 children under age 14
   c. Due to the statistical discrepancies (different settings of the pediatric age groups) this is applicable

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**Table 1. Peritoneal dialysis reimbursement comparison**

<table>
<thead>
<tr>
<th>Manipulation / Reimbursement</th>
<th>EST</th>
<th>LAT</th>
<th>LIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter Placement</td>
<td>195</td>
<td>Add.</td>
<td>None</td>
</tr>
<tr>
<td>PD Catheter Cost</td>
<td>198</td>
<td>120</td>
<td>None</td>
</tr>
<tr>
<td>Acute APD Per Session</td>
<td>60</td>
<td>64</td>
<td>None</td>
</tr>
<tr>
<td>PD Patient Control Monthly</td>
<td>0</td>
<td>57</td>
<td>None</td>
</tr>
<tr>
<td>Patient Control Per Day</td>
<td>8</td>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>PD Children Per Day</td>
<td>62</td>
<td>De facto</td>
<td>None</td>
</tr>
<tr>
<td>PD Adult Per Day</td>
<td>193</td>
<td>De facto</td>
<td>None</td>
</tr>
</tbody>
</table>

Table 2. Pediatric peritoneal dialysis possibilities in Baltic countries

<table>
<thead>
<tr>
<th>PD starting issues</th>
<th>ESTONIA</th>
<th>LATVIA</th>
<th>LITHUANIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who makes the choice?</td>
<td>Nephrologist + Patient</td>
<td>Nephrologist + Patient</td>
<td>Consilium 3 Nephrologists</td>
</tr>
<tr>
<td>Limitations?</td>
<td>None</td>
<td>None</td>
<td>Set by Authorities</td>
</tr>
<tr>
<td>Sick fund coverage?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Changes allowed</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Compliance to EU guidelines</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

February 10, 2007 BPPDF, Vilnius

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7 European guidelines (currently under revision by European expert group) will supposedly contain even more strict requirements than currently valid UK recommendations - expected to come in force by 2009.
8 Manpower Recommendations from the British Association for Paediatric Nephrology for the UK, 1995 (endorsed by British Paediatric Association, Royal College of Physicians, Renal Association of UK).
10 The British Association for Paediatric Nephrology. The First Thirty Years. © R H R White, 2003. Published by the British Association for Paediatric Nephrology.
11 Clinical workforce survey by the Royal Australasian College of Physicians 1996.
to Baltic States with recalculation: at least 1 consultant per 200,000 pediatric population under the age of 18 and at least 2 consultants per centre (again, over the number of fellows)

Between Baltic countries, only Estonia meets the manpower criteria, with Lithuania closing up. The far worst situation is in Latvia, where urgent assessment is required (Picture 4).

The crucially important is the recognition of the rapidly growing worldwide time-consuming in therapeutic pediatric disciplines. The growing understanding of pathophysiology means much more complicated investigations involved, more clinical data to analyze, and the correct implementation of this knowledge to particular patients. It causes the rapid increase in time needed for data analysis and clinical implementation, and the resulting decrease in the number of patients that can be rightly served within the working time limits. Projection analysis done on this issue showed, that in comparison to current average European status, in 10-year time the same amount of patients to be served properly will need 120-150% more doctors. For countries already below the average European levels, the manpower increase to provide the same quality care should be doubled.

The adequate service also requires the proper nurse staffing, which in Europe is defined as adequate for therapeutic pediatric disciplines as one FTE nurse per one bed served, or ratio 1:1. For pediatric intensive care units (ICU), the ratios should be in excess of 3:1.

European guidelines require providing individual support to every pediatric RRT patient, which is possible only in the pediatric nephrology centers properly staffed with FTE psychologist and FTE clinically-trained dietitian in the nephrology department / ward regular staff, and comprehensive social workers.

The Baltic comparison (Picture 5) revealed:
A. Nurses
   a. Tartu has correct staffing
   b. Tallinn & Riga are moderately understaffed
   c. Vilnius & Kaunas are severely (triple) understaffed
B. Fellows or attending nephrologists
   a. Vilnius & Kaunas has correct staffing
   b. Tartu is moderately understaffed
   c. Tallinn & Riga are severely (double) understaffed
C. Consultants
   a. Lithuania one short
   b. Estonia two short
   c. Latvia one short
D. Multidisciplinary team – none of the Baltic centers meet EU requirements

CONCLUSION
None of the Baltic pediatric nephrology centers meets all of the European requirements. Some of the centers simultaneously lack meeting several of those. The above situation requires urgent attention!

SUMMARY
The general situation in providing pediatric renal replacement therapy in the Baltic States might be described as acceptable, with the exception of Lithuania failing to provide the adequate peritoneal dialysis service. The later issue is recommended for prompt reassessment by Lithuanian health care authorities.

However, the analysis revealed some more serious issues, mostly related to inappropriate pediatric nephrology staffing both in nursing, attending nephrologists, consultants, and lack of multidisciplinary support team, which will inevitably lead to professional burnout.

Much more importantly, this issue poses dangerous quality threats!

The responsible authorities and hospital administrators...
are advised to reassess the service requirements and to find the way to ensure proper staffing in all three medical professional levels (nurses, fellows, and consultants).

It would be also highly recommended to solve the multidisciplinary approach issues, though the problems there are deeper and mostly related, but not limited to inappropriate clinical knowledge and disease-specific education and training of support specialists.

**VALID EUROPEAN GUIDELINES AS FOR MAY 2008**


B. Guidelines by an ad hoc European committee on the assessment of growth and nutritional status in children on chronic peritoneal dialysis. Publication Date: 12 Jan 2001, Publisher: European Society for Paediatric Nephrology.


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