Results from the Implementation of a Growth Disorders Related Twinning Programme (Partners4Growth) at tertiary pediatric endocrinology clinics

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INTRODUCTION
Early diagnosis of growth disorders (GD) in children and their timely treatment are important for better outcomes. Recognizing GD and proper referral for investigations and treatment in Bulgaria are usually delayed. To improve GD diagnosis and treatment, a national partnership program - Partners4Growth (2019-2021), was developed.

AIM
Evaluation of the first results from the implementation of the Partners4Growth (P4G) Twinning Programme at Bulgarian tertiary pediatric endocrinology clinics.

METHOD
• Start of Partners4Growth since 2019 at 6 centers – 3 experienced and 3 twin centers, after short pilot (2018)
• Education and on-going support of twin centers’ personnel
• Standardization of the methods for growth evaluation and follow-up.
• Supply with certified equipment and reagents.
• A questionnaire at baseline and at the 18th month of the Programme.
• 41 questions concerning diagnosis and management of GH disorders.

RESULTS
• 104 newly diagnosed patients with GD (fig. 1).
• Pituitary MRI or CT scan (33.3%), fundoscopy, celiac disease antibodies and karyotyping in all patients at diagnosis.
• GH deficiency verified by 2 stimulation tests (tabl. 1).
• GH treatment started in 91 children, 59 (65%) boys, mean age of 10.3±5.5 (2.1 – 17.9) years
• 35.8% of all currently GH treated Bulgarian children.

CONCLUSIONS
• Partners4Growth facilitated the alignment of the tertiary pediatric endocrinology centers competences thus leading to better geographic access to diagnosis and treatment of growth disorders.
• For its short existence the Programme has significantly increased the number of newly diagnosed and treated patients.
• Further decrease of age at diagnosis remains a challenge for the duration of P4G and thereafter.

ACKNOWLEDGEMENTS
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REFERENCES

CONTACT INFORMATION
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APPLICATIONS

Preliminary assessment of available resources
• infrastructure • human resources

Analysis of current organization of GHD
• IGD diagnosis • treatment

Assessment of barriers and facilitators

Testing the program in real conditions
• UMHAT - Pleven, March 2018

Network of 6 centers
• Suspended reference centers
• Twin centers

Education of twin centers’ personnel

Standardization of auxology
• Paper growth charts
• Regulated web-based growth applications

Provider with certified equipment and reagents
• scales • hormonal reagents • stimulation tests’ reagents (arginine)

Summarizing the results
• questionnaire at baseline and after 18m
• 41 questions about diagnosis and treatment

Fig. 1 Distribution of children eligible for GH treatment by diagnoses

Constnstant collaboration between referent and twin centers

Tabl. 1 Stimulation tests

<table>
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<tr>
<th>Test</th>
<th>1st choice (n, %)</th>
<th>2nd choice (n, %)</th>
<th>3rd choice (n, %)</th>
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<tbody>
<tr>
<td>Insulin tolerance test</td>
<td>3 (50%)</td>
<td>3 (50%)</td>
<td></td>
</tr>
<tr>
<td>Glucagon</td>
<td>4 (66,7%)</td>
<td>2 (33,3%)</td>
<td></td>
</tr>
<tr>
<td>Arginine</td>
<td>2 (33,3%)</td>
<td>1 (16,7%)</td>
<td></td>
</tr>
<tr>
<td>Clonidine</td>
<td>1 (16,7%)</td>
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</tbody>
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