GROWTH AND NUTRITION IMPROVEMENT WITH RECOMBINANT GROWTH HORMONE IN PATIENTS WITH SILVER-RUSSELL SYNDROME

INTRODUCTION

- Silver-Russell syndrome (SRS) is an imprinting disorder characterized by intrauterine and postnatal growth retardation, feeding difficulties and several dysmorphic features.
- In 50-55% of patients, loss of methylation (LOM) in 11p15 region on the paternal allele is identified, whereas a maternal uniparental disomy of chromosome 7 (upd7(mat)) is present in the remaining 5-10%.
- Recombinant growth hormone (rGH) therapy under EMMA indication for children born small for gestational age with no catch-up growth.
- Few data on growth impact during the first years of rGH therapy.
- Malnutrition affects around 70% of them. Nutritional support can be necessary, especially before initiating rGH therapy.
- Weight for height target is [75-85%] and/or BMI [12-14 kg/m²].
- Recommendation to start rGH therapy earlier than 4 years for its effects on body composition improvement appetite.
- Few data on nutritional impact during the first years of rGH therapy.

AIM

Assess rGH therapy impact on both growth and nutritional status in prepubertal patients with SRS during the first two years of treatment.

METHOD

- Molecularly proven SRS patients
- Before and during the first two years of rGH therapy
- Retrospective, monocentric analysis of growth and nutritional features
- In respect with French Ethical laws

RESULTS

- 64 prepubertal SRS patients
- Age at rGH onset: 1.3 years (3.6 years) 7.6
- 10/11p15, n=51
- LOM 11p15, n=13
- upd7(mat), n=13

<table>
<thead>
<tr>
<th>Parameter</th>
<th>All (n=64)</th>
<th>11p15 LOM (n=51)</th>
<th>upd7(mat) (n=13)</th>
<th>11p15 LOM vs upd7(mat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH-CSS ≥ 4</td>
<td>64/64 (100)</td>
<td>51/51 (100)</td>
<td>13/13 (100)</td>
<td>0.01</td>
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<tr>
<td>SGA</td>
<td>61/64 (95.3)</td>
<td>50/51 (98.0)</td>
<td>11/13 (84.6)</td>
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<tr>
<td>Postnatal growth failure</td>
<td>61/64 (95.3)</td>
<td>48/51 (94.1)</td>
<td>13/13 (100)</td>
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<td>Relative macrocephaly</td>
<td>58/64 (90.6)</td>
<td>46/51 (90.2)</td>
<td>12/13 (92.3)</td>
<td>0.77</td>
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<tr>
<td>Protuding forehead</td>
<td>59/64 (93.6)</td>
<td>47/50 (94.0)</td>
<td>12/13 (92.3)</td>
<td>1</td>
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<tr>
<td>Body asymmetry</td>
<td>41/62 (66.1)</td>
<td>40/50 (80.0)</td>
<td>1/12 (8.3)</td>
<td>&lt;0.001</td>
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<tr>
<td>Feeding difficulties</td>
<td>58/64 (90.6)</td>
<td>45/51 (88.2)</td>
<td>13/13 (100)</td>
<td>0.33</td>
</tr>
</tbody>
</table>

Table 1. Clinical characteristics of the Netchine-Harrison clinical scoring system (NH-CSS) in the cohort and comparison between 11p15 LOM and upd7(mat) groups. p values below 0.05 are indicated in italics.

CONCLUSIONS

- rGH therapy is effective in prepubertal SRS patients growth during the two first years of treatment at regular doses
- rGH therapy allowed a significant improvement of ideal weight for height/length in SRS patients
- Close management of nutritional parameters (Weight for height/length) is mandatory in these patients to prevent from long-term metabolic complications
- Knowledge on precise body composition before and during rGH therapy is lacking

ACKNOWLEDGEMENTS

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