BODY COMPOSITION USING BIO-IMPEDANCE ANALYSIS IN PEDIATRIC PATIENTS WITH INFLAMMATORY BOWEL DISEASE. CONCORDANCE WITH DUAL ENERGY X-RAY ABSORPTIOMETRY AND COMPARISON WITH HEALTHY CONTROLS

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BACKGROUND:

Growth is a central process in paediatrics. Weight and height evaluation are therefore routine exams for every child but in some situation, particularly inflammatory bowel disease (IBD), a wider evaluation of nutritional status needs to be performed. Twenty-five percent of Crohn’s diseases (CD) are diagnosed during puberty, with growth failure often being the predominant initial manifestation. The underlying mechanisms of growth retardation are not fully understood but may be primarily related to malnutrition and to the strong inflammatory reaction occurring during active disease.

OBJECTIVES: 1. Assess the accuracy of BIA in estimating body composition (percentage fat mass: FM% and percentage fat free mass: FFM%) in children with IBD, compared with DEXA (gold standard)
2. To compare FM% and FFM% levels between IBD patients and healthy controls

RESULTS

Results for agreement between BIA and DEXA for body composition are summarized in table 1 and in figures 2 to 3.

BIA values showed a good correlation with DEXA for both FM% and FFM%. FM% assessed by BIA showed a very good agreement with DEXA (figure 2a), at least being less than 2% (figure 2b). FFM% assessed by BIA also showed a good agreement with DEXA (figure 3a), but BIA tended to overestimate FFM% by 1.1% on average (figure 3b).

No differences in body mass index (BMI) were found between IBD children and healthy controls: mean BMI: 19.3±3.3 (mean ± standard deviation) vs. 20.1±2.8 kg/m², respectively, p=0.39. After stratifying on gender, no differences in FM% were found between IBD children and controls: for boys, 25.3±10.2 vs. 22.6±7.1%, p=0.42; for girls, 28.2±5.7 vs. 26.4±7.7%, p=0.54 for IBD children and controls, respectively. Similar findings were obtained after adjusting for age.

CONCLUSION

BIA adequately assesses body composition of IBD children. Because of clinical advantages (figure 1) it could adequately replace DEXA in clinic!

No significant difference was found regarding body composition of IBD children relative to healthy controls.

BIBLIOGRAPHY:

3. Purdie AS, Colacine diagnostico, n° 8 (October 2009)

Table 1: results of the agreement between body composition as assessed by skinfold equations and DEXA

<table>
<thead>
<tr>
<th>SPEARMAN</th>
<th>LIN’S CONCORDANCE</th>
<th>BLAND-ALTMAN LINEAR AGREEMENT</th>
<th>BRADLEY-BLACKWOOD</th>
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</thead>
<tbody>
<tr>
<td>correlation</td>
<td>Coefficient</td>
<td>95% CI</td>
<td>Difference</td>
</tr>
<tr>
<td>FM %</td>
<td>0.927 ***</td>
<td>0.917</td>
<td>0.930±0.004</td>
</tr>
<tr>
<td>FFM %</td>
<td>0.927 ***</td>
<td>0.923</td>
<td>0.937±0.003</td>
</tr>
</tbody>
</table>

* denotes a difference of 0.05, ** indicates a difference of the difference + 0.05