Quality of life in children with eosinophilic esophagitis associated with esophageal atresia and tracheoesophageal fistula

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Introduction
Eosinophilic oesophagitis (EOE) has been reported to be more prevalent in esophageal atresia (EA) patients. Both EOE and EA have been linked to lower Quality of Life (QOL). Furthermore, EOE has been shown to have a substantial impact on several psychosocial domains. To date, there have been no studies looking at the QOL in patients with both EOE and EA.

Aim
To evaluate QOL scores in pediatric patients with EOE.

Methods
Prospective evaluation of 13 children between the ages of 0-20 years attending an EA clinic between March 2014 and March 2016. All but 2 of these patients were on current treatment for their EA. EOE QOL was assessed using the PedsQL Eosinophilic Esophagitis questionnaire. As there is no validated cut-off value defining ‘good’ or ‘poor’ QOL in EOE, a value of 70 was chosen to separate scores into two groups for analysis. The patients also completed the Parental report PedsQL Generic Core Scales, the scores of which were compared to control group of patients. A retrospective audit was performed to obtain patient demographics, presence of symptoms such as reflux and dysphagia, strictures needing dilatations and surgery such as gastrostomy and fundoplication. The presence of negative mealtime behaviors, as determined by dietitian, were also analysed.

Results:

Table 1: Patient Demographics

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>EOE +EA/TEF (n=13)</th>
<th>EOE+EA/TEF (n=27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>5.28 (2.19-10.03)</td>
<td>6.24 (2.17-17.66)</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>9 (69.2%)</td>
<td>13 (39.4%)</td>
<td></td>
</tr>
<tr>
<td>EA Category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 1</td>
<td>1 (7.7%)</td>
<td>2 (6.5%)</td>
</tr>
<tr>
<td>Type 2</td>
<td>2 (15.4%)</td>
<td>28 (90.3%)</td>
</tr>
<tr>
<td>Type 3</td>
<td>10 (76.9%)</td>
<td>1 (3.2%)</td>
</tr>
<tr>
<td>Associated cardiac anomalies</td>
<td>5 (38.5%)</td>
<td>18 (54.5%)</td>
</tr>
<tr>
<td>Related syndrome</td>
<td>VACTERL</td>
<td>2 (15.4%)</td>
</tr>
<tr>
<td>CHARGE</td>
<td>1 (7.7%)</td>
<td>0</td>
</tr>
<tr>
<td>Poliad</td>
<td>0</td>
<td>1 (3.2%)</td>
</tr>
</tbody>
</table>

PedsQL Generic Core Scales

Scores were available for 9 of 13 EA/TEF patients with EOE (69.2%), and for 27 EA/TEF patients without EOE. Total scores for the generic questionnaire were similar for the two groups, with EA/TEF patients scoring slightly lower than their non-EOE counterparts (mean 72.88 vs 76.9).

EOE patients scored lower in the domains of:
- Physical functioning 73.26 vs 81.93
- Emotional 71.67 vs 76.29
- Social 66.25 vs 79.3
- Psychosocial 71.3 vs 73.72
EOE patients scored higher in the “school” domain (79 vs 72.36).

None of the differences were found to be statistically significant.

Comparison to recent EOE QOL Study
In September 2014, Klimm et al. published the PedsQL results of 94 patients with EOE without EA/TEF.

At 6 months follow up, their patients had higher psychosocial (75.7, a difference of 4.4), physical (83.8, a difference of 6.5) and total scores (79.7, a difference of 7.42) compared to our 13 patients with both EOE and EA/TEF.

Figure 1: Mean EOE QOL scores by category

Signs & Symptoms

6 patients (46.2%) scored a “poor” EOE QOL score, whilst 7 patients (53.8%) had a “good” score.

All patients had a past history of GERD and all but one were receiving PPI treatment. All patients had a past history of GERD and all but one were receiving PPI treatment. Coughing/gagging with meals was significantly more prevalent in the “poor” category than “good” (93.3% vs 14.3%, p=0.023, as was vomiting (66.7% vs 0%, p=0.021). Rates of Dysphagia, Heartburn & Reflux were all significantly lower in the “poor” EOE QOL group than the “good” EOE QOL.

Procedures/Surgeries

Fundoplication, gastrostomy, as well as dilatations were not significantly different between the two groups.

Figure 4: Physical Measurements

Physical Measurements

Mean height centile for the entire EA/TEF group was 33 (range 0.7 to 79.3) and the mean BMI for age >2 was 18.61 (range 10.7 to 79.3) and the mean BMI for age >2 and height was 21.85 (range 10.7 to 79.3). Mean height, weight and BMI were not significantly different between the “poor” and “good” EOE QOL groups.

The 27 patients with EA/TEF had higher height (37.51), weight (40.1) and BMI (40.6) than those with EOE and EA/TEF (p<0.05).

Conclusion

- EA/TEF patients with EOE scored lower total scores in a lower in a generic, pediatric QOL questionnaire compared to EAE/TEF or EOE only groups. While the results were insignificant, this trend may be more apparent with larger numbers.
- Parent’s proxy scores were lower than the children’s self-reported scores in the EOE QOL questionnaire, especially for “communication”, “food/eating” and “feelings.”
- Although no significant difference in EOE QOL score between children of different age categories, older children scored lower than young children in all domains.
- Rates of coughing/gagging, vomiting was significantly higher in children with “poor” EOE QOL than “good”.
- Height, weight and BMI were not significantly different between the “poor” and “good” EOE QOL groups.
- Future long-term prospective studies on larger cohorts using QOL tools specific to EOE at time of diagnosis and after treatment of EOE are required to better determine the impact of EOE on everyday life.

References