Malnutrition During Hospitalisation for Acute Severe IBD is Associated with Increased Risk of Relapse

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Conclusions

Days with suboptimal calorie intake during hospitalisation for IBD flare are associated with steroid-requiring relapse in the subsequent year.

We speculate that suboptimal nutrition may adversely affect attainment of durable remission by impeding epithelial cell regeneration or microbial restitution.

The association between readmission and immunosuppressant use and weight gain during the admission, may be a marker of disease severity and be caused by low serum albumin leading to oedema, respectively.

Background

Current data suggest that malnutrition during IBD flare predicts in-hospital mortality, surgery and admission duration. However, longer-term effects of nutrition during IBD flare are unknown. We hypothesised that nutritional factors during hospitalisation for acute severe IBD are associated with higher risk of relapse of inflammation in the year following discharge.

Methods

- Admitted to the Karolinska Hospital Gastroenterology ward with IBD flare between 01.01.2015 and 29.02.2016.
- Data collected retrospectively from hospital records and the Swedish National IBD registry (SWIBREG).
- Complete resection of inflamed tissue during the admission.
- Patients already included in the study due to a previous in-patient stay during the study period.
- Predictive factors (during in-patient admission): nutritional intake, disease factors, inflammatory markers and daily calorie requirement (30 kcal/kg, adjusted in case of extreme values of age, BMI or physical activity).
- Outcome (in the year following discharge): Relapse defined as requirement of new steroid prescription, intensification of biological therapy, readmission, surgery or calprotectin.
- Adjustments for age and gender.
- To control for multiple comparisons the false discovery rate (FDR) control was used.

Results

The No. of days with sub-optimal calorie intake during the in-patient period was associated with the no. of steroid prescriptions in the follow-up year (Figure 1, Table 1).

Overall, 23, 50 and 74%, of patients had calorie intake <30, <50 and <70% of calculated need. Markers of inflammation severity (CRP, calprotectin and stool frequency on admission) were not associated with subsequent relapse

A rise in weight/BMI during the inpatient period and ongoing immunosuppressive treatment at admission were associated with subsequent readmission (Table 1).

No other predictors were associated with relapse.

Table 1. List of all predictors (during admission) that were found to be significantly associated with the outcome (relapse in the year following discharge). Q-values indicate the level of FDR. Hence, a total of 6 discoveries with significance ≤0.05 with acceptance of 12% FDR were found.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Outcome</th>
<th>Q-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nr of days &lt;30%</td>
<td>Number of steroid prescriptions</td>
<td>0.0760</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Nr of days &lt;50%</td>
<td></td>
<td>0.0738</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Nr of days &lt;70%</td>
<td></td>
<td>0.119</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Weight gain</td>
<td></td>
<td>0.000771</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Raise in BMI</td>
<td>Number of readmissions</td>
<td>0.0230</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Immunosuppressant at admission</td>
<td></td>
<td>0.112</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

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