BACKGROUND & AIM
Pre-operative exclusive enteral nutritional (E/EN) has been associated with improved post-operative outcomes in patients with Crohn’s disease (CD) but it is not standard practice in most centres. We aimed to test the hypothesis that pre-operative EEN in patients undergoing ileal/ileocolonic surgery for CD is associated with improved post-operative outcome.

METHODS
• Single-centre retrospective observational study
• Comparing surgical outcomes in patients receiving ≥2 weeks pre-operative EN with those who received no nutritional optimisation.
• Consecutive adult patients undergoing ileal/ileocolonic resection from 2008-2020 were included.
• Identified from IBD-dietetic and surgical databases and digital records using a custom-built package (EndoMine®) in R 3.6.1 [R Foundation for Statistical Computing, Vienna, Austria].
• Primary end-point: post-operative complications within 30-days.
• Secondary end-points: specific surgical complications, unplanned stoma formation, length of stay, length of bowel resected and biochemical/anthropometric changes.
• Exclusion criteria: free gastrointestinal perforation, complete bowel obstruction, concomitant eating disorder, parental nutrition (PN) from the outset.
• Cohorts: Intention-to-treat cohort - Patients who were initiated on EN at any duration +/- required PN; per protocol (PP) cohort - patients who achieved minimum 2 weeks EN and who did not require PN; non-optimised cohort - patients prescribed no EN or less than <600 kcal/day.

RESULTS

<table>
<thead>
<tr>
<th>Outcome variable</th>
<th>ITT cohort (n=198)</th>
<th>PP cohort (n=166)</th>
<th>Non-optimised cohort (n=104)</th>
<th>Univariate and multivariate analyses</th>
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<td></td>
<td></td>
<td>Univariate analysis</td>
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<td></td>
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<td></td>
<td></td>
<td>OR (95%CI)</td>
</tr>
<tr>
<td>All</td>
<td>42 (21.2)</td>
<td>32 (19.3)</td>
<td>28 (16.9)</td>
<td>0.33 (0.20-0.55)</td>
</tr>
<tr>
<td>complications</td>
<td></td>
<td></td>
<td></td>
<td>0.29 (0.17-0.50)</td>
</tr>
<tr>
<td>Surgical</td>
<td>36 (18.2)</td>
<td>28 (16.9)</td>
<td>37 (35.6)</td>
<td>0.40 (0.24-0.69)</td>
</tr>
<tr>
<td>complications</td>
<td></td>
<td></td>
<td></td>
<td>0.36 (0.21-0.65)</td>
</tr>
<tr>
<td>Non-surgical</td>
<td>12 (6.1)</td>
<td>7 (4.2)</td>
<td>20 (19.2)</td>
<td>0.25 (0.11-0.54)</td>
</tr>
<tr>
<td>complications</td>
<td></td>
<td></td>
<td></td>
<td>0.19 (0.08-0.46)</td>
</tr>
<tr>
<td>Infective</td>
<td>25 (12.6)</td>
<td>7 (4.2)</td>
<td>34 (32.7)</td>
<td>0.30 (0.17-0.54)</td>
</tr>
<tr>
<td>complications</td>
<td></td>
<td></td>
<td></td>
<td>0.24 (0.12-0.45)</td>
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</table>

Delivery of EN
Initiation of oral EN: inpatient 72/198 (36.3%); outpatient 126/198 (63.6%). Four cases required feeding tube insertion (all subsequently escalated to PN). Target EN achieved was documented in 183/198 patients: 150 (75.8%) achieved the prescribed EEN target (EEN accounting for ≥75% of their daily requirement). 25 (12.8%) patients achieved partial EN (>600 kcal/day and <75% of their nutritional requirement). 8 patients tolerated <600 kcal/day constituting ≤25% of their daily energy requirements.

Baseline characteristic | ITT cohort (n=198) | Non-optimised cohort (n=104) | p-value |
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<tbody>
<tr>
<td>Median age at operation in years (IQR)</td>
<td>34.9 (27.8-43.8)</td>
<td>41.3 (30.2-54.4)</td>
<td>0.01</td>
</tr>
<tr>
<td>Sex - female, n (%)</td>
<td>91 (46.0)</td>
<td>64 (61.5)</td>
<td>0.01</td>
</tr>
<tr>
<td>Median disease duration years (IQR)</td>
<td>8.6 (2.8-17.3)</td>
<td>10.7 (3.1-15.5)</td>
<td>0.48</td>
</tr>
<tr>
<td>Penetrating phenotype, n (%)</td>
<td>110 (55.6)</td>
<td>45 (43.3)</td>
<td>0.04</td>
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<tr>
<td>L1-ileal, n (%)</td>
<td>61 (30.8)</td>
<td>31 (29.0)</td>
<td>0.86</td>
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<td>L4- UGI, n (%)</td>
<td>6 (3.0)</td>
<td>7 (6.7)</td>
<td>0.13</td>
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<tr>
<td>&amp; SI- perianal, n (%)</td>
<td>53 (26.8)</td>
<td>21 (20.2)</td>
<td>0.21</td>
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<td>Prior CD resection, n (%)</td>
<td>89 (44.9)</td>
<td>53 (50.9)</td>
<td>0.56</td>
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<td>Immunomodulator, n (%)</td>
<td>108 (54.5)</td>
<td>60 (57.7)</td>
<td>0.60</td>
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<tr>
<td>Biologic, n (%)</td>
<td>109 (55.1)</td>
<td>26 (25.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Steroids ≤4 weeks pre-operatively, n (%)</td>
<td>26 (13.1)</td>
<td>17 (16.3)</td>
<td>0.45</td>
</tr>
<tr>
<td>Antibiotics, n (%)</td>
<td>79 (39.9)</td>
<td>26 (25.0)</td>
<td>0.01</td>
</tr>
<tr>
<td>Abscess, n (%)</td>
<td>41 (20.7)</td>
<td>11 (11.3)</td>
<td>0.03</td>
</tr>
<tr>
<td>PSD ≥3.0cm</td>
<td>96 (48.9)</td>
<td>41/95 (41.4)</td>
<td>0.13</td>
</tr>
<tr>
<td>Laparoscopy, n (%)</td>
<td>67 (33.8)</td>
<td>23 (22.1)</td>
<td>0.03</td>
</tr>
<tr>
<td>Ileoceleal, n (%)</td>
<td>83 (41.9)</td>
<td>45 (43.3)</td>
<td>0.82</td>
</tr>
<tr>
<td>Right hemicolectomy, n (%)</td>
<td>54 (27.3)</td>
<td>36 (34.6)</td>
<td>0.19</td>
</tr>
<tr>
<td>Ileocolic and SB/SP, n (%)</td>
<td>19 (9.6)</td>
<td>9 (8.7)</td>
<td>0.79</td>
</tr>
<tr>
<td>SB resection or SP only, n (%)</td>
<td>42 (21.2)</td>
<td>14 (13.5)</td>
<td>0.10</td>
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</table>

CONCLUSIONS
• Oral EN is well tolerated and insertion of nasogastric or nasojejunal tube is not required to achieve nutritional goals.
• Nutritional optimisation is associated with reduced post-operative complications within 30 days; predominantly Clavien-Dindo grade 1-2 complications

LIMITATIONS
• Retrospective data, groups not propensity matched, no data on smoking status, comorbidities or operating times. Multivariate analysis therefore performed to adjust for confounding.

On multivariate analysis, baseline serum albumin was the only predictor of the need for escalation to PN.