Rationale: This study was designed to investigate the effects of diabetes specific formula on perioperative non-diabetic patients with gastrointestinal surgery.

Methods: Gastrointestinal perioperative patients were eligible for enrollment into the trial according to the inclusion criteria. Enrolled patients were randomized to either intervention group receiving a diabetes specific formula or a control group receiving standard enteral formula. The primary efficacy variable was plasma glucose level which was detected 0, 1, 2, 3 hours after enteral formula intake on the second day before operation and the sixth day after operation (POD 6). Complications and adverse events were monitored every day during the study.

Results: 145 (74 intervention and 71 control) patients completed the study. The plasma glucose level significantly increase after operation in both groups. At baseline and POD 6 the diabetes specific formula resulted in a significantly lower postprandial rise in blood glucose concentrations at 1 hour (p < 0.05) compared with standard formulas. The change of glucose AUC over 2 hours and 3 hours between POD 6 and baseline also show a significant difference between two groups. During the hospitalization, the infectious complication rate was significantly lower in intervention group than in control group (p < 0.05). We also found the incidence of adverse events related to the formula was significantly lower in intervention group than in control group (p < 0.05).

Conclusion: Diabetes specific formula may decrease the change of postprandial, alleviate the stress hyperglycemia and reduce gastrointestinal adverse reaction during perioperative period.

Disclosure of Interest: None declared

MON-LB272
A RANDOMIZED, DOUBLE-BLIND, PARALLEL, CONTROLLED AND MULTICENTER STUDY TO ASSESS THE EFFICACY AND SAFETY OF NEW COMPOUND AMINO ACID (19) N-L-ALANYL-L-GLUTAMINE INJECTION IN POSTOPERATIVE PATIENTS OF GASTROINTESTINAL SURGERY WITH TOTAL PARENTERAL NUTRITION
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Rationale: To evaluate the efficacy and safety of a new compound amino acid injection with 18.05% N-L-alanyl-L-glutamine, 1% taurine and 30% branch chain amino acids (BCAA) in postoperative patients of gastrointestinal surgery with total PN (TPN).

Methods: All patients received PN for 6 days postoperatively with isonitrogen (0.20 g·kg⁻¹·d⁻¹), non-protein isocalories (20 kcal·kg⁻¹·d⁻¹) including lipid (1.0 g·kg⁻¹·d⁻¹). GI surgery patients aged 18 to 75 years who needed PN with NRS 2002 scores ≥3. Efficacy was evaluated including Gln and prealbumin level, the profile of amino acid, the ratio of lactulose to mannitol (L/M), and clinical benefit. Safety was evaluated including infective complications, laboratory abnormal such hepatic or renal dysfunction, and hospital stay.

Results: 269 patients (control group: n = 136, study group: n = 133) were included. After surgical operation, Gln level was decreased on POD1 in each group with no differences (p = 0.5940). But the serum concentration of Gln was significantly higher in the study group on POD3 (482.77 ± 92.28 vs 428.37 ± 85.19, p < 0.0001) and POD7 (519.01 ± 95.23 vs 468.87 ± 80.47, p < 0.0001) during postoperative TPN. BCAA level was also significantly higher in the study group on POD3 (604.34 ± 148.06 vs 541.88 ± 98.52, p = 0.0001) and POD7 (565.99 ± 131.98 vs 514.16 ± 89.25, p = 0.0002), and the change trends of leucine, isoleucine and valine were consistent with BCAA. Whereas an opposite change trend was found in total aromatic amino acids compared to BCAA, especially phenylalanine on POD3 and tyrosine on POD3 and POD7 were obviously lower in the study group. There were no differences in the incidence of infective complications (3.68% vs 4.51%, p = 0.7676) and the increased ALT level (level 3, CTCAE 4.0) (5 cases vs 1 case, p = 0.2136). No statistical differences were found in the adverse drug reactions rates and severities between two groups.

Conclusion: The patients showed a better recovery of serum Gln and BCAA level after postoperative TPN with the new compound amino acid. It may make more benefit for patients to restore the immune system function, accelerate the wound healing and decrease the incidence of infective complications after GI surgery.

Disclosure of Interest: None declared

MON-LB273
NOVEL VITAMIN D-NANOEMULSION DEVELOPED BY SONICATION AND pH-SHIFTING OF PEA PROTEIN ISOLATE ENHANCES INTESTINAL ABSORPTION OF VITAMIN D IN RATS
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Rationale: Limited dispersion, instability, and bioavailability of Vitamin D (VD) requires improved formulation. In this study, the absorbptive ability of a novel VD (cholecalciferol) containing nanoemulsion (VDN) developed by sonication and pH-shifting of pea protein isolate and canola oil vs a commercial oral VD form in rats was evaluated.
Table 1: Plasma levels of 25-hydroxy vitamin D3 after oral dose of the novel vitamin D nanoemulsion and marketed form

<table>
<thead>
<tr>
<th></th>
<th>Nano-VD</th>
<th>Oil-VD</th>
<th>Nano-alone</th>
<th>Oil-alone</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basal</td>
<td>18.19 ± 0.88</td>
<td>13.19 ± 3.15</td>
<td>13.74 ± 2.67</td>
<td>14.77 ± 3.99</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>1 hour</td>
<td>31.68 ± 3.14</td>
<td>14.77 ± 3.87</td>
<td>13.44 ± 2.16</td>
<td>13.60 ± 4.54</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>6 hours</td>
<td>48.00 ± 1.41</td>
<td>14.58 ± 4.47</td>
<td>11.95 ± 0.14</td>
<td>14.50 ± 3.42</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>24 hours</td>
<td>61.00 ± 3.29</td>
<td>9.69 ± 1.82</td>
<td>17.99 ± 0.04</td>
<td>13.75 ± 3.30</td>
<td>p &lt; 0.001</td>
</tr>
</tbody>
</table>

*p by Kruskal-Wallis test, **p by Friedman-ANOVA test

Methods: Twenty-four, adult male albino rats (289 ± 43 g) were housed in single cages and fed AIN-93M diets ad libitum. All single oral doses were delivered by gavage. The four treatment groups (n = 6 rats each) were: a) a 3 mL of VDN solution containing 27 µg/mL VD (3.240 IU), b) the nanoemulsion without VD, c) the same VD dose using the commercial VD with 3 mL of canola oil, and d) a 3 mL dose of canola oil without VD. Serial blood samples (n = 10) were automatically withdrawn (0, 0.5, 1, 2, 4, 6, 8, 10, 12, and 24 h) from surgically inserted carotid catheter in each rat using an automated blood sampling device. The zero time represents the basal level after recovery from surgery and just before ingestion of treatment. Plasma 25-hydroxy vitamin D (25OHD) was measured by ELISA.

Results: At all time-points, VDN treatment showed higher levels 25OHD compared to the commercial formulation or controls (p < 0.05). The novel VDN formulation tripped serum 25OHD levels within 24 h (61.0 ± 3.3 vs 18.2 ± 0.9, p < 0.001), while the commercial preparation did not in the same period.

Conclusion: Bioavailability of liposoluble VD can be increased using novel pea protein-based nanoemulsion. Further research should address the underlying mechanisms.

Disclosure of Interest: None declared

MON-LB275
PRE-PREGNANCY BODY MASS INDEX AND GESTATIONAL DIABETES ON MATERNAL FATTY ACID PROFILE AND PLACENTAL TRANSFER
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Rationale: Gestational diabetes (GD) may modify maternal fatty acid (FA) availability during pregnancy and may also alter placental transfer compromising fetus supply of key nutrients such as long chain (LC) polyunsaturated fatty acids (PUFAs), especially arachidonic acid (AA) and docosahexaenoic acid (DHA). A high body mass index (BMI) increases the risk for GD and is also related to an altered FA profile, hence we aimed to determine the maternal alterations in FA profile and FA placental transfer caused by GD and if they change according to maternal BMI.

Methods: Pregnant women (n = 179) were selected from the population-based PREOB cohort, divided in control (n = 135) and women with GD (n = 44), these last were ultimately divided according to their pre-pregnancy BMI (normweight, overweight and obese). Maternal plasma and umbilical