Case Study: Metabolic Stress and Trauma: Open Abdomen

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Patient Profile

Juan Perez

- 29 yr old, Hispanic male
- Brought to the ER with a gunshot wound to the abdomen
  - Vomiting blood and complained of severe back and stomach pain
- 4+ bilateral edema
- Not allergic to medications/No chronic medical problems
- Tobacco Use
- Single - lives with his brother
- Operations for exploratory laparotomy, gastric repair, control of liver hemorrhage, resection of proximal jejunum
Anthropometric Data

Day 1:

- 102.7 kg (by day 7 in the hospital, he had gained 6.3 pounds)
  - IBW: 75.45 kg
- 70"
- BP: 115/65
- Temperature: 102.5 degrees
- BMI: 32.1
  - Obese
Energy and Protein Needs

- Harris Benedict: 3000-3100 kcal/day
- Penn State: 2300-2400 kcal/day
- Protein requirements: 154 g/day
- NPO, TPN
- Recommendation to initiate trickle feed of Pivot at 5 mL/hr
<table>
<thead>
<tr>
<th>Date</th>
<th>29-Mar</th>
<th>1-Apr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose</td>
<td>164 mg/dL</td>
<td>140 mg/dL</td>
</tr>
<tr>
<td>BUN</td>
<td>23 mg/dL</td>
<td>25 mg/dL</td>
</tr>
<tr>
<td>Creatinine serum</td>
<td>1.4 mg/dL</td>
<td>1.6 mg/dL</td>
</tr>
<tr>
<td>Total Protein</td>
<td>5.2 g/dL</td>
<td>5.1 g/dL</td>
</tr>
<tr>
<td>Albumin</td>
<td>1.4 g/dL</td>
<td>1.9 g/dL</td>
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<tr>
<td>Prealbumin</td>
<td>3.0 mg/dL</td>
<td>5.0 mg/dL</td>
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<tr>
<td>TG</td>
<td>274 mg/dL</td>
<td>265 mg/dL</td>
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<tr>
<td>ALT</td>
<td>435 U/L</td>
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<tr>
<td>AST</td>
<td>190 U/L</td>
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<tr>
<td>CPK</td>
<td>182 U/L</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Medical Treatment - PN

Via PN:

- 2964 kcal, 194 g protein at 3240 mL per day

Propofol (medication for sedation)

- Added 924 kcal
- Receiving 840 mL a day

Total:

- 3888 kcal per day, 194 g protein
Weight Gain

Adm Wt: 102.7 kg   /   Current Wt: (day 7): 109 kg

Reasons for weight gain:

● Entered hospital with 4+ bilateral edema
● No stool output
● Fluid retention based on I/O record
  ○ Net since admission: +3721 mL
Diagnosis (PES)

Inadequate protein intake (NI-5.6.1) related to metabolic stress and trauma due to a gunshot wound to the abdomen as evidenced by a negative nitrogen balance.
Goals for Diagnosis

Goal: Provide enough protein in Juan’s TPN to ensure that his nitrogen balance is positive in order to heal promptly as well as ingesting enough protein for the body to function properly.
Intervention

Monitor the amount of protein Juan is receiving to ensure that he is getting adequate amounts in order to help heal his abdominal wound and supply the body.
Outcome

Continue to monitor his PN support to ensure that he is receiving the correct nutrition to help aid in his wound healing.
References


