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Appendix

Table of Glucose Values First 24 hours after Surgery and the Average Within 48 Hours

<table>
<thead>
<tr>
<th>Metabolic Group</th>
<th>Peak Postoperative Glucose</th>
<th>Patients</th>
<th>Fasting</th>
<th>PACU</th>
<th>Pre-dinner</th>
<th>Bedtime</th>
<th>Morning</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Normal</td>
<td>Expected Postoperative Glucose</td>
<td>240</td>
<td>90</td>
<td>7</td>
<td>99</td>
<td>16</td>
<td>106</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Mild Hyperglycemia</td>
<td>133</td>
<td>91</td>
<td>6</td>
<td>109</td>
<td>26</td>
<td>138</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Severe Hyperglycemia</td>
<td>69</td>
<td>92</td>
<td>5</td>
<td>121</td>
<td>38</td>
<td>164</td>
<td>43</td>
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<tr>
<td></td>
<td>Total</td>
<td>442</td>
<td>91</td>
<td>7</td>
<td>106</td>
<td>25</td>
<td>133</td>
<td>36</td>
</tr>
<tr>
<td>Prediabetic</td>
<td>Expected Postoperative Glucose</td>
<td>196</td>
<td>106</td>
<td>9</td>
<td>105</td>
<td>15</td>
<td>112</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Mild Hyperglycemia</td>
<td>196</td>
<td>108</td>
<td>8</td>
<td>122</td>
<td>24</td>
<td>140</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Severe Hyperglycemia</td>
<td>134</td>
<td>111</td>
<td>8</td>
<td>126</td>
<td>29</td>
<td>176</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>526</td>
<td>108</td>
<td>8</td>
<td>117</td>
<td>24</td>
<td>146</td>
<td>39</td>
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<tr>
<td>Diabetic</td>
<td>Expected Postoperative Glucose</td>
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<td>115</td>
<td>22</td>
<td>109</td>
<td>19</td>
<td>106</td>
<td>14</td>
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<td>84</td>
<td>126</td>
<td>24</td>
<td>126</td>
<td>25</td>
<td>140</td>
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<td>302</td>
<td>141</td>
<td>34</td>
<td>149</td>
<td>41</td>
<td>190</td>
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<tr>
<td></td>
<td>Total</td>
<td>430</td>
<td>135</td>
<td>32</td>
<td>140</td>
<td>39</td>
<td>176</td>
<td>57</td>
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<td></td>
<td>Grand Total</td>
<td>1398</td>
<td>111</td>
<td>26</td>
<td>120</td>
<td>33</td>
<td>154</td>
<td>49</td>
</tr>
</tbody>
</table>

Insulin Management for Orthopedic Patients

1. Order POC glucose:
   a. NPO: order q6h
   b. Eating: order AC and HS
   *Goal is random glucose <180 and AC glucose <140

2. Determine patient sensitivity scales for diabetics:
   a. Sensitive: New diagnosis DM, age>70 years, BMI<25kg/m2, eGFR<45ml/min
   b. Resistant: Outpatient insulin >80 units/day, BMI>35 Kg/m2, steroid treatment >20mg q day
   c. Usual: all others

3. Patient diabetes status prior to surgery:
   a. Does not have diabetes/prediabetes: SIH (Stress-Induced Hyperglycemia)
   b. Patient with diabetes diagnosis and on oral meds at home or newly diagnosed diabetics
   c. Patients with DM on insulin at home
4. Post-operative diabetes orders: (done based on patient status prior to surgery and the patient
sensitivity scale determined above)

   a. **Patient that does not have diabetes or patient with prediabetes:**
      i. Use only correctional insulin **SENSITIVE** scale

   b. **Patient with diabetes diagnosis and on oral meds at home or newly diagnosed diabetics. *Use sensitivity scale that was determined above:**
      i. Continue oral medications with the exception of sulfonylureas or SGLT2 inhibitors
      ii. Start correctional per patient sensitivity scale identified (usually the **USUAL** scale)

   c. **Patient with existing diagnosis of Diabetes Mellitus treated with insulin at home. *Use sensitivity scale that was determined above:**
      i. Determined **Sensitive** scale patient:
         1. Insulin glargine 0.1 units/kg subcutaneous at bedtime
            OR
            Insulin glargine: order 50% of home TDD as basal at bedtime
         2. Insulin lispro 100 units/ml: Blood glucose (mg/dl) Sensitive scale
      ii. Determined **Usual** scale patient:
         1. Insulin glargine 0.2 units/kg subcutaneous at bedtime
            OR
            Insulin glargine: order 50% of home TDD as basal at bedtime
         2. Insulin lispro 100 units/ml: Blood glucose (mg/dl) Usual scale
      iii. Determined **Resistant** scale patient:
         1. Insulin glargine: order 50% of home TDD as basal at bedtime
         2. Insulin lispro 100 units/ml: Blood glucose (mg/dl) Resistant scale

5. **Insulin correctional scales:**
   a. **SENSITIVE Scale correctional insulin:** Insulin lispro 100 units/ml
      181-220 = 2 units
      221-260 = 3 units
      261 – 300= 4 units
      301-350= 5 units
      351-400 = 6 units
      >400 = 8 units

   b. **USUAL scale correctional insulin:** insulin lispro 100 units/ml
      141-180 = 2 units
      181-220 = 3 units
      221-260 = 4 units
      261 – 300= 6 units
      301-350= 8 units
351-400 = 10 units
>400 = 12 units

c. **RESISTANT scale correctional insulin:** insulin lispro 100 units/ml

- 141–180 = 3 units
- 181-220 = 4 units
- 221-260 = 5 units
- 261 – 300 = 8 units
- 301-350 = 10 units
- 351-400 = 12 units
- >400 = 14 units

6. Post-operative Adjustments:
   a. Discontinue POC orders and insulin orders when blood glucose values are less than 140 WITHOUT insulin for 24 hours
   b. Adjust insulin orders daily when blood glucose values are not within targeted levels:
      i. **Basal Regimen: Insulin Adjustment**
         1. **IF fasting and pre-dinner BG** is between 100-140 mg/dl without hypoglycemia the previous day: no change
         2. **IF BG** is between 140 -180 mg/dl without hypoglycemia the previous day: increase glargine TDD by 10%
         3. **IF BG** >180 mg/dl without hypoglycemia the previous day: increase glargine TDD by 20%
         4. **IF BG** is between 70 -99 mg/dl: decrease glargine TDD by 10%
         5. **IF BG** is <70 mg/dl: decrease glargine TDD by 20%