Management of Diabetes Mellitus in the Perianesthesia Setting

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What are the numbers?

Cleveland Clinic

- 1200+ beds, quaternary care center, located in Cleveland, Ohio
- 44 Buildings
- Spans 180 acres
- 53,000 admissions in 2011

More about the Cleveland Clinic

- 65 nursing units
- 14 adult ICU’s
- 1600 staff physicians
- 1300 resident physicians
- 90 pharmacists
- 34 registered dietitians
- 3100+ nurses

Global Prevalence

Etiology Classification of DM

<table>
<thead>
<tr>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>β-cell destruction with lack of insulin</td>
</tr>
<tr>
<td>Type II</td>
<td>Insulin resistance with insulin deficiency</td>
</tr>
<tr>
<td>Gestational</td>
<td>Insulin resistance with β-cell dysfunction during pregnancy</td>
</tr>
<tr>
<td>Steroid induced</td>
<td>Drug induced</td>
</tr>
<tr>
<td>Other specific types</td>
<td>Genetic defects in β-cell function, exocrine pancreas disease, endocrinopathies</td>
</tr>
</tbody>
</table>
### Type I vs. Type II

<table>
<thead>
<tr>
<th></th>
<th>Type I</th>
<th>Type II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Acute</td>
<td>Insidious</td>
</tr>
<tr>
<td>DKA</td>
<td>Present</td>
<td>Rare</td>
</tr>
<tr>
<td>Insulin reserve</td>
<td>Absent</td>
<td>Present</td>
</tr>
<tr>
<td>Weight</td>
<td>Thin/Normal</td>
<td>Overweight</td>
</tr>
<tr>
<td>Acanthosis Nigricans</td>
<td>Absent</td>
<td>Present</td>
</tr>
</tbody>
</table>

### Pathophysiology of DM

- Type I
- Type II

### Macrovascular Complications

- Foot and Leg Complications

### Microvascular Complications

- Macrovascular Complications

### Acanthosis Nigricans

- Present
- Rare
How Do We Meet These Needs in the Perianesthesia Setting?

### Configuration of Insulin Therapy

<table>
<thead>
<tr>
<th>RAPID ACTING</th>
<th>SHORT ACTING</th>
<th>INTERMEDIATE</th>
<th>LONG ACTING</th>
<th>FIXED Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular (Humulin)</td>
<td>Regular (Humulin)</td>
<td>NPH (Noulet)</td>
<td>Lente (Humulin)</td>
<td>70/30 (Humulin) (Pre-Filled)</td>
</tr>
<tr>
<td>Novolog (Lantus)</td>
<td>Novolog (Lantus)</td>
<td>Humulin N (Humulin)</td>
<td>Humulin 00/00</td>
<td>Humalog (Lispro) Mix 50/50 70/30</td>
</tr>
</tbody>
</table>

### Review of Insulin

**Neuropathic Complications**

**Other Complications**

**Diabetics Having Surgery**
Stress of Surgery

Preop Physical Exam

Preop Assessment

More...

Day of Surgery

Diabetics Managed With Diet Alone
<table>
<thead>
<tr>
<th>Diabetics Treated With Orals</th>
<th>Diabetics Treated With Insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perioperative Glucose</td>
<td>Intraop</td>
</tr>
<tr>
<td>Admission to PACU</td>
<td>Phase I Postop</td>
</tr>
</tbody>
</table>
Hypoglycemia

Postop

RN care Phase II

Phase II

RN care RNF

Special Situations
Emergency Surgery

Review of Insulin Pump

Insulin Pumps

Goal

Indications for insulin pumps:

Why patients prefer insulin pumps?

Starts in the Preoperative Evaluation Clinic

Day of Surgery

RN care in the Preop area
Role of DMM

Role DMM in Perianesthesia Setting

Responsibilities of DMM

Teaching Tool
“Harry Hypoglycemia”

Teaching Tool
“What’s the 411 on the 911?”

“Harry Hypoglycemia” – created by Nancy Kaser and Christina Canfield © Cleveland Clinic

“Know When to Hold Em” created by Nancy Kaser and Christina Canfield © Cleveland Clinic
Key Points

Impact of DMM

Case study

Questions?

For further information regarding this presentation, please contact us at:

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