New Approaches to Diabetes Therapies and an Update in Technologies

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Disclosures

 Speaker for Amarin Corporation; AstraZeneca Pharmaceuticals LP; Novo Nordisk; and Valeritas, Inc.

Objectives:

 To review the current clinical guidelines
 Present a new focus in the diabetes treatment paradigm
 Can insulin delivery methods be simplified for patients?
 What glucose sensors are available?
 What are additional options for insulin delivery for patients?

POMA 111th Annual Clinical Assembly
May 1-4, 2019
GLP1 Receptor Agonists

**FDA-Approved Agents**
- Dulaglutide (Trulicity)
- Exenatide (Byetta)
- Exenatide ER (Bydureon)
- Liraglutide (Victoza)
- Lixisenatide (Adlyxin)
- Semaglutide (Ozempic)

**Key Features**
- Injectable administration
- Mimic action of native GLP1
- Increase glucose-dependent insulin secretion
- Suppress glucagon production
- Slow gastric emptying

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SGLT2 Inhibitors

**FDA-Approved Agents**
- Canagliflozin (Invokana)
- Dapagliflozin (Farxiga)
- Empagliflozin (Jardiance)
- Ertugliflozin (Steglatro)

**Key Features**
- Oral administration
- Inhibit reabsorption of glucose into the bloodstream from renal fluid
A1C and Mortality in Clinical Practice
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A New Era in the Management of T2DM
- Antihyperglycemic agents not only focus on A1C-lowering, but also impact CV outcomes

Carefully select which agent for which patient!
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Based on recent SGLT-2 inhibitor cardiovascular outcomes trials, the guidelines recognize the significant reduction in ASCVD events and heart failure with use of an SGLT-2 inhibitor.

Carefully select which agent for which patient!

- Glycemic lowering
- CVD safety
- Renal effectiveness

Carefully select agent best suited for patient!
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Sensors

- Guardian
- Dexcom
- Libre
- Evensense
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**Table of Comparison**

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Guardian</th>
<th>Dexcom</th>
<th>Libre</th>
<th>Eversense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td></td>
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<tr>
<td>Alarms</td>
<td></td>
<td></td>
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<tr>
<td>Smartphone integration</td>
<td>Yes</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td></td>
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<tr>
<td>USB cable and charger: fully charged battery can last up to 5 days.</td>
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<tr>
<td>MARD (mean absolute relative difference)</td>
<td>0.7%</td>
<td></td>
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</tr>
<tr>
<td>Size</td>
<td>Record 3x high: 1.5mm diameter about the size of a quarter.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical orientation, 30% higher than Libre. About the size of a quarter.</td>
<td>Vertical orientation, 30% higher than Libre. About the size of a quarter.</td>
<td></td>
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</tr>
</tbody>
</table>

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**Image**

- Sensors
  - Guardian
  - Dexcom
  - Libre
  - Eversense

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Check your glucose with a painless scan, instead of a fingerstick.*

Diabetes is complex enough. Monitoring your diabetes shouldn’t be.

Accurate

The Freestyle Libre 1 day sensor automatically measures glucose readings day and night and is accurate for insulin dosing.

Convenient

The small sensor is about the size of two stacked quarters and can be inserted discreetly, even through clothing. You can even scan the sensor with your compatible iPhone.

User-friendly

The Freestyle Libre 1 day sensor is perfect for busy, on-the-go lifestyles. It’s water resistant so you can swim, shower, or exercise.

Sensors

- Guardian
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Insulin Infusion Pumps

- t:Slim
- Omnipod
- Medtronic
Insulin Infusion Pumps

- T-Slim
- Omnipod
- Medtronic

Basal-IQ™ Technology

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Insulin Infusion Pumps

- T-Slim
- Omnipod
- Medtronic
Omnipod Insertion

Insulin Infusion Pumps
- T-Slim
- Omnipod
- Metronic

Metronic - Minimed Insulin Infusion Pumps
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Minimed 670G

World's first self-adjusting insulin pump system

User interaction required

Introducing the Minimed™ 670G System
Summary

- Further understanding of known diabetes agents have expanded indications to include reducing cardiovascular outcomes.
- Technology has improved our methods of determining glucose values directed toward the glucose sensor, which do not confine to a fingerstick and detect hypoglycemia in a 24 hour clock.
- Furthermore insulin delivery systems have advanced to detect hypoglycemia and automatically change basal rates. This is closer to the artificial pancreas.