Optimal Rehabilitation of the Cardiac Patient with Diabetes

Barbara Masters, BSN, RN-BC

Memorial Hospital Services

• Acute Care Facility
• 316 Licensed Beds
• Services:
  • Cardiology
  • Neurosurgery
  • General Surgery
  • Orthopedics
  • OB/GYN
  • Oncology
  • Primary Care
  • Emergency Department
• Four Cardiac Cath Labs
• Nine Endoscopy/GI Procedure Rooms
• Nineteen Operating Room Suites
• Twenty ICU Beds
• 360+ Physicians
• Magnet accredited hospital April 2008
• Certified Chest Pain Center since April 2008

Objectives

❖ To provide detailed guidelines for the management of patients with diabetes in cardiopulmonary rehabilitation
❖ To focus on optimizing cardiovascular risk reduction
❖ To promote self-management of diabetes
Two Cardiac Rehabilitation (CR) patients experienced significant hypoglycemia post exercise requiring rapid response.

- Absence of local, state, or national guidelines to treat hypoglycemia in outpatient CR setting
- Limited evidenced-based recommendations for optimal care of the cardiac patient with diabetes

Evidence Based-Practice

- Collaborated with Memorial’s Certified Diabetic Educators (CDE) & Registered Dietitians (RD)
- CR staff conducted a literature review to identify evidence-based recommendations regarding:
  - Diet
  - Diabetes medications
  - Impact on exercise
  - Potential for hypo/hyperglycemia
- Initiated a study to determine the appropriate blood glucose to exercise and dismiss patients with diabetes from a monitored exercise program

Data Collection

- Data logs:
  - Recorded each patient’s visit for 24 months: July 2007-June 2009
  - Population: 131 insulin-dependent patients
    - Recorded FBS
    - Pre & post exercise blood glucoses (BG)
    - Acceptable target range for exercising: 100-300 mg/dL
    - Repeated BG <100 or >300 mg/dL required a staff consultation with attending physician
  - BG results provided staff and patients with important information regarding effect of exercise
It Is All In The Timing

- Emphasized meal time and exercise scheduling when taking insulin and/or oral agents with potential hypoglycemic effects
- Consider:
  - Medication type and delivery method
  - Dose time
  - Medication action onset and peak
  - Time of day
  - Time and content of last meal
  - Type and duration of activity

Blood Glucose within Target Range (Pre & Post Exercise)

<table>
<thead>
<tr>
<th>Time</th>
<th>7AM-12AM</th>
<th>12PM-6PM</th>
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<tbody>
<tr>
<td>&gt;100mg/dL</td>
<td>24%</td>
<td>25%</td>
</tr>
<tr>
<td>&lt;300mg/dL</td>
<td>4%</td>
<td>4%</td>
</tr>
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>100mg/dL & <300 mg/dL

The Discovery

There are no absolutes when it comes to diabetes. Just when you think you have it figured out . . . .
Dissemination of Findings
- Developed a CR policy to guide evidence-based care of CR patients with diabetes
- Shared policy with Outcomes Committee of the Illinois Society of Cardiovascular Health & rehabilitation (ISCHR)
- Initiated a study with ISCHR for more specific guidelines for patients with diabetes in the CR setting

Pathway to Partnership
- Formed a partnership with ISCHR & American Association of Cardiovascular & Pulmonary Rehabilitation (AACVPR) to develop guidelines for optimal care of the CR patient with diabetes
- Collaboratively writing a paper for publication with AACVPR
  - Endocrinologist
  - Nurses
  - Certified Diabetic Educators
  - Dietitians
- Goal: To provide the best evidence for the management of CR patient with diabetes

Conclusions & Implications
- Providing optimal care of the cardiac rehabilitation patient with diabetes is a complex process which requires interdisciplinary collaboration.
- Safe, high quality patient care requires a partnership with patients to educate them about their disease process, diet, medications and the impact of exercise.
- Cardiac rehabilitation provides an excellent opportunity to assist a patient with diabetes due to the frequent contact and close trusting relationships developed in this setting.
- Physician and patient partnership is essential in achieving the best possible glycemic control.
References


