Diapression: Recognizing and Effectively Treating Depression in Individuals with Diabetes

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Presenter Disclosure
Paul Ciechanowski, MD, MPH
CEO and Founder of Samepage (samepage.org)
Mrs. J.

- 56 y.o. married, post-menopausal woman with 6-year history of type 2 diabetes
- Moderate control ($HbA_1c$ 7.5%)
- Medications:
  - metformin
  - lovastatin
  - lisinopril
  - aspirin
  - gabapentin

Mrs. J.

- Past 6 months, complaining of:
  - insomnia and worsening neuropathy pain
  - fatigue
  - reduced pleasure
  - decreased concentration
  - increased isolation
  - decreased exercise
  - increased “grazing” with significant weight gain
  - irritability at work
  - “out of control sugars” (now $A_1c$ 8.7%) and angry

**DENIES DEPRESSED MOOD**

“I know what I am supposed to do and I know what I am not supposed to do, but I still do the wrong things and I don’t know why.”
Mrs. J.

- Has had more sick days in the past 2 months than in the prior 10 years, and has missed 2 health care visits in that period.

- Has decreased glucose monitoring frequency and acknowledges that she just restarted metformin 2 weeks ago when she also finally bought more glucose meter strips.

- Today, she is concerned about the nutritionist’s notes from a visit 6 weeks ago.

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1. Depression Can Mimic and Amplify Diabetes Symptoms
Major Depression
(5/9 symptoms nearly every day for 2 weeks)

- Depressed mood
- Loss of interest and pleasure
- Change in sleep
- Change in appetite / weight
- Low energy / fatigue
- Psychomotor agitation / slowing
- Poor concentration
- Low self-esteem or guilt
- Thoughts of suicide or death

Relationship of Major Depression to Diabetes Symptoms – Odds Ratios

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold hands &amp; feet</td>
<td>1.93</td>
</tr>
<tr>
<td>Numbness: hands &amp; feet</td>
<td>1.95</td>
</tr>
<tr>
<td>Pain: hands &amp; feet</td>
<td>2.23</td>
</tr>
<tr>
<td>Polyuria</td>
<td>2.24</td>
</tr>
<tr>
<td>Excessive hunger</td>
<td>2.66</td>
</tr>
<tr>
<td>Abnormal thirst</td>
<td>3.30</td>
</tr>
<tr>
<td>Shakiness</td>
<td>3.53</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>3.42</td>
</tr>
<tr>
<td>Feeling faint</td>
<td>4.00</td>
</tr>
<tr>
<td>Daytime sleepiness</td>
<td>4.96</td>
</tr>
</tbody>
</table>

Ludman et al. Gen Hosp Psych 2004
2. Depression Is Associated With Poor Diabetes Self-Management and Poor Treatment Adherence

\[ \text{% HbA1c}>8\% \]

\[
\begin{array}{lcccc}
\text{Depression Group} & \text{None} & \text{Minor} & \text{Major} \\
\text{HbA1c}>8\% & 41.3\% & 46.6\% & 54.4\% \\
\text{p}<0.01 & \text{p}<0.01 & \text{p}<0.001 \\
\end{array}
\]

Katon et al. Diabetes Care 2004

MEDICATION NON-ADHERENCE

\[
\begin{array}{lccc}
\text{Group} & \text{Depressed} & \text{Non-Depressed} \\
\text{Oral Hypoglycemic} & 24.5\% & 27.9\% \\
\text{Lipid Lowering Meds} & 21.6\% & 21.6\% \\
\text{ACE Inhibitors} & 18.8\% & 19.3\% \\
\end{array}
\]

Lin et al. Diabetes Care 2004
3. Depression Can Lead to Adverse Lifestyle Habits

<table>
<thead>
<tr>
<th>Depression Group</th>
<th>% SMOKING</th>
<th>% BMI&gt;30 kg/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>7.4%</td>
<td>49.1%</td>
</tr>
<tr>
<td>Minor</td>
<td>10.3%</td>
<td>57.2%</td>
</tr>
<tr>
<td>Major</td>
<td>16.0%</td>
<td>68.7%</td>
</tr>
</tbody>
</table>

Katon et al. Diabetes Care 2004
4. 
Depression Is Associated With Changes in Health Care Utilization Patterns

Missed Primary Care Appointments By Depression Status

N = 4,280

Adjusted for age, gender, race, medical comorbidity, diabetes severity and primary care utilization

*Ciechanowski et al., 2006

5. 
Symptoms of Depression Reduce Levels of Trust and Satisfaction With Care
Lack of Satisfaction with Diabetes Care

Adjusted for age, gender, race, medical comorbidity, diabetes severity and primary care utilization

Ciechanowski et al. 2006

Treatment Considerations
Lustman et al., 1998

- Intervention: CBT
- Type 2 diabetes
- N=51
- Major Depression + BDI ≥ 14
- Mean Hb$_{A1c}$ = 10.3%
- 10-week treatment period
- 6-month follow-up

**IMPROVED (%)**

<table>
<thead>
<tr>
<th></th>
<th><strong>70</strong></th>
<th><strong>70</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>POST-TREATMENT</td>
<td>36.6</td>
<td>31.9</td>
</tr>
<tr>
<td>6 MONTHS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Buproprion and Neuropathy

- Double-blind, placebo-controlled, crossover RCT.
- 41 non-depressed patients with neuropathy got buproprion SR 150 - 300 mg for 6 wks.
- 75% of subjects reported that pain improved or was much improved with 30% reduction in pain.

— Semenchuk et al. Neurology: 2001
Venlafaxine for Diabetic Neuropathic Pain

- Randomized, double-blind, placebo-controlled: 29/40 completed
- Pain scores at week 4 were lower on venlafaxine 225 mg than on placebo
  – Sindrup et al, Neurology 2003

- Double-blind placebo-controlled study of 244 patients with diabetic neuropathic pain treated with venlafaxine 150 mg for six weeks was superior to placebo
  – Rowbotham et al, Pain 2004

Duloxetine and Neuropathy

- 12-week, multicenter, double-blind study, 457 patients treated for 12 weeks with duloxetine 20 mg, 60 mg or 60 mg BID
- Duloxetine (60 mg, 60 mg BID) pts had lower average daily pain and higher % achieving >50% pain reduction than placebo
  – Goldstein DJ et al. Pain 2005

Screen for comorbid anxiety ± panic attacks and look for inability to differentiate anxiety symptoms from diabetes symptoms (e.g. hypoglycemia).
Screen for associated **eating concerns**.

Use brief **cognitive behavioral therapy approaches** for emotional eating (e.g. ABCD approach).

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**GAD-7**

> Over the last 2 weeks, how often have you been bothered by the following problems? (Use “LE” to indicate your answer)

<table>
<thead>
<tr>
<th>Antecedents</th>
<th>Behavior</th>
<th>Consequences</th>
<th>Different Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling anxious, exasperated or on edge</td>
<td>Not at all</td>
<td>Several days</td>
<td>More than half the days</td>
</tr>
<tr>
<td>Feeling unable to stop or control worrying</td>
<td>Not at all</td>
<td>Several days</td>
<td>More than half the days</td>
</tr>
<tr>
<td>Worrying too much about different things</td>
<td>Not at all</td>
<td>Several days</td>
<td>More than half the days</td>
</tr>
<tr>
<td>Trouble relaxing</td>
<td>Not at all</td>
<td>Several days</td>
<td>More than half the days</td>
</tr>
<tr>
<td>Feeling so restless that it is hard to sit still</td>
<td>Not at all</td>
<td>Several days</td>
<td>More than half the days</td>
</tr>
<tr>
<td>Becoming overly anxious or irritable</td>
<td>Not at all</td>
<td>Several days</td>
<td>More than half the days</td>
</tr>
<tr>
<td>Feeling afraid as if something awful might happen</td>
<td>Not at all</td>
<td>Several days</td>
<td>More than half the days</td>
</tr>
</tbody>
</table>

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**Treatment of Depression: Cognitive Behavioral Therapy**

- **ABCD**'s of emotionally-driven behaviors

<table>
<thead>
<tr>
<th>Date</th>
<th>Antecedents</th>
<th>Behaviors</th>
<th>Consequences</th>
<th>Different Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/25</td>
<td>feeling left out</td>
<td>eating chocolate bars at break</td>
<td>feelings of guilt/shame</td>
<td>discuss with friend/sister</td>
</tr>
<tr>
<td></td>
<td>“wrong job”</td>
<td>not checking glucose out of hopelessness</td>
<td>increased blood glucose</td>
<td>consider seeking new job</td>
</tr>
<tr>
<td></td>
<td>feeling resentment toward professional women</td>
<td>not good enough</td>
<td>weight gain</td>
<td>setting weight goals with friend</td>
</tr>
<tr>
<td></td>
<td>not good enough</td>
<td></td>
<td>tired, can’t get work done</td>
<td>with diabetes</td>
</tr>
</tbody>
</table>

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### Decisional Balance (e.g. smoking)

<table>
<thead>
<tr>
<th>Benefits (Pros)</th>
<th>Changing</th>
<th>Not changing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Less coughing</td>
<td></td>
<td>• Helps me deal with stress</td>
</tr>
<tr>
<td>• Wife will be happy</td>
<td></td>
<td>• Helps me think clearly</td>
</tr>
<tr>
<td>• Socially acceptable</td>
<td></td>
<td>• Keeps the weight off</td>
</tr>
<tr>
<td>• Faster healing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Costs (Cons)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lose friends who smoke</td>
<td>• Higher risk of cancer</td>
<td></td>
</tr>
<tr>
<td>• Gain weight</td>
<td>• Poorer health</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wound will not heal</td>
<td></td>
</tr>
</tbody>
</table>

Use "Collaborative Care" to address depression in patients with diabetes and other chronic conditions.
**The “Multi-Condition” Patient**

JAMA, April 7, 2010

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**Collaborative Care Treatment of Depression in Patients with Diabetes**

3 RCTs:
- IMPACT (n=435) (Unutzer et al., 2002)
- Pathways (n=329) (Katon et al., 2004)
- Ell et al. (n=387) (2010)

Improved depression, function

**BUT**

No change in HbA1c, self-care behaviors
“Multi-Condition Collaborative Care” for chronic conditions and depression to address:

- A1c
- Blood pressure
- Cholesterol (LDL)
- Depression

TEAMcare Study & Program

Research Team Support:
T. Beatty, M. Oliver, J. Ewing,
Z. Bermet, M. Brakke, S. Keeley,
GHRI Survey team

Intervention Nurses:
M. McGregor, D. Griffith, S. Ruedebusch,
S. Randles, L. Cole, L. Brown

Funded by National Institute of Mental Health
**TEAMcare Inclusion Criteria**

- Automated data (ICD-9) of having:
  - diabetes and/or coronary artery disease

- Poor disease control:
  - HbA1c ≥ 8.5%
  - Blood pressure > 140/90 mmHg
  - LDL >130 mg/dL

- PHQ-9 > 10

**TEAMcare Recruitment**

- 14 primary care clinics
- 150 primary care physicians signed consent
- 9,838 PHQ-2 screeners mailed
- 214 Patients randomized
  - 106 Intervention
  - 108 Control

**TEAMcare Nurse Training**

- Motivational interviewing/enhancement
- Problem solving
- Behavioral activation
- Antidepressants
- TREAT-to-TARGET:
  - blood glucose
  - blood pressure
  - LDL cholesterol
Mr. T

61 yr old married, retired naval shipyard worker
- Uncontrolled type 2 diabetes (A1c = 9.6%)
- Hypertension (BP = 174/94 mmHg)
- Lipids (LDL = 38 mg/dL)
- Obesity (Weight = 269 lbs; BMI = 39.7 kg/m²)
- Hypothyroidism, psoriasis, gout
- Hx: diverticulitis, kidney stones
- Prescribed meds: glyburide, lisinopril, atenolol, atorvastatin, levothyroxine
Mr. T

Chief complaint: fatigue

PHQ-9 = 19/27
Meets criteria for major depression with:
- depression
- anhedonia
- insomnia
- difficulty concentrating
- overeating with weight gain

Mr. T

Nutritional habits and patterns:
- not eating breakfast
- eating high fat foods
- emotional eating
- eating irregularly
- hypoglycemia due to missed meals

Mr. T

PHQ-9 Depression Scores over Time

- Citalopram 20 mg daily titrated to 60 mg daily over 6 weeks
- Bupropion SR 100 mg daily added
- Ongoing attention to problem solving
- Recognizes depression in family member
Demographics and Clinical Characteristics

- Mean age: 56.8 years
- Female: 52%
- ≥ 1 year college: 59%
- Caucasian: 77%
- Employed: 56%

- Diabetes: 86%
- CHD: 26%
### Process of Care

- Mean of 10 brief in-person visits + 10 brief phone contacts
- Cost $1200/yr

### Mean of SCL Score

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>6 Months</th>
<th>12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention mean (N)</td>
<td>1.7 (105)</td>
<td>0.8 (97)</td>
<td>0.8 (94)</td>
</tr>
<tr>
<td>Control mean (N)</td>
<td>1.7 (106)</td>
<td>1.3 (96)</td>
<td>1.1 (92)</td>
</tr>
</tbody>
</table>

### Mean of HbA1c

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>6 Months</th>
<th>12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention mean (N)</td>
<td>8.1 (105)</td>
<td>7.4 (99)</td>
<td>7.3 (101)</td>
</tr>
<tr>
<td>Control mean (N)</td>
<td>8.0 (105)</td>
<td>7.6 (95)</td>
<td>7.8 (97)</td>
</tr>
</tbody>
</table>
Comparison with other studies

<table>
<thead>
<tr>
<th>Domain</th>
<th>I vs. C TEAMcare study</th>
<th>I vs. C other studies</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>SCL: 0.4</td>
<td>ES: 0.65</td>
<td>37 Collaborative Care Trials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ES: 0.25</td>
<td></td>
</tr>
<tr>
<td>HbA1c</td>
<td>0.58%</td>
<td>0.42%</td>
<td>66 Diabetes Care Trials</td>
</tr>
<tr>
<td>Systolic Blood Pressure</td>
<td>5.1 mmHg</td>
<td>4.5 mmHg</td>
<td>44 Trials</td>
</tr>
<tr>
<td>LDL Cholesterol</td>
<td>6.9 mg/dL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Any Medication Adjustment

<table>
<thead>
<tr>
<th>Group</th>
<th>UC</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
<td>30</td>
<td>80</td>
</tr>
<tr>
<td>SH</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td>AH</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>LL</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>AD</td>
<td>30</td>
<td>80</td>
</tr>
</tbody>
</table>

* p-value < 0.05; ** p-value < 0.01; *** p-value < 0.001

Any Adjustment

UC I

Any Medication Adjustment

 TEAMcare

a TEAM behind you committed to care

in the news

by contributors & authors

TEAMcarehealth.org