Case SIGNOUT:

JT is a 31 year-old woman with chronic pancreatitis who presented with worsening epigastric abdominal pain for two days. She had normal amylase and lipase (24u/L and 13u/L), benign physical exam without abdominal tenderness or rigidity, afebrile with no WBC elevation, normal urinalysis, and normal abdominal sonography. The etiology of her pancreatitis is unclear, as she has normal triglycerides, does not drink alcohol, and had not been stung by any scorpions; sphincter of oddi dysfunction had been put forward by her outpatient GI doctor s/p multiple ERCPs. At baseline, she also has moderate left hip pain after being struck by a car as a pedestrian one year ago and has major depression. She takes up to 80mg of oxycodone PO daily at home for both her abdominal and hip pain. She refused treatment earlier this year at our pain clinic as they were unwilling to prescribe her opioids. She expresses frustration with the present delay in treating her pain and requests IV dilaudid for rapid relief.

Clinical Question: Are there effective non-traditional strategies for helping patients with chronic pain to minimize catastrophizing?

Search Strategy
Database: PubMed
Search query: (chronic pain) AND catastrophizing)) AND (randomized controlled)
Results: 69 articles

Article chosen:
Senior Medicine Rotation: Based Medicine Project (Cont)

<table>
<thead>
<tr>
<th>Group</th>
<th>Criteria or definition</th>
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<tr>
<td>Population screened.</td>
<td>People aged between 18 and 75 years on the waiting list for multidisciplinary pain management</td>
<td>140</td>
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<tr>
<td>Inclusion criteria</td>
<td>Pain sufficient to disrupt activities of daily living for more than the previous 3 months</td>
<td>89</td>
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<tr>
<td>Exclusion criteria</td>
<td>Did not read English, scheduled for surgery within 3 months</td>
<td>5</td>
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<tr>
<td>Treatment group</td>
<td>Book of metaphorical stories about pain biology</td>
<td>40</td>
</tr>
<tr>
<td>No treatment group</td>
<td>Book of advice on pain management</td>
<td>39</td>
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Primary endpoints: Pain Biology Questionnaire score, Pain Catastrophizing Scale score
Secondary endpoints: self-reported pain score (0-10), self-reported disability score (0-10) for five patient-selected activities

- Are the Results of the Trial Valid?
  - Randomized? Yes, via concealed random number table.
  - All patients accounted for at end? Yes, 79 entered and 79 followed-up fully.
  - Intention to treat? Not explicitly stated, but the crossover was performed only after initial data were gathered and analyzed.
  - Blinding? Single-blind, given that the two arms were asked different sets of questions by investigators to determine if they’d read what they claimed, but the data were analyzed by a blinded researcher.
  - Groups similar at start of trial? Yes, they were the same size (±1 participant) and there were no significant demographic differences.
  - Equal treatment of groups? Although different questions were asked of each arm to determine whether or not they had read the booklet sections they reported reading, the instructions and the assessment scales were made identical for both groups.
  - Did randomization work? Yes, the groups had no significant demographic differences, and the initial scores on PBQ, PCS, pain, and disability assessments were equivalent.

- Are the Results of the Trial important?
  - The importance of the trial results is in their demonstration of the booklet of metaphor’s success at increasing pain biology knowledge and decreasing catastrophizing, both of which have been seen in other studies to correlate positively with better outcomes. Also of import, thirty-three (83%) of the treatment group and 38 (97%) of the control group reported that they thought they were allocated to active treatment. This is interesting, because fewer people in the experimental group felt they were being actively treated--and they were wrong--but there was still a significant beneficial effect of the treatment on their knowledge and level of catastrophizing. The researchers did not report any correlation between the believing you were in the active group and the effectiveness of the intervention, but it would have been interesting to know. Furthermore, on average, the treatment group reported that they read 82%± 17% of their booklet while the control group reported that they read 47%± 26% of their booklet; the treatment group also had more correct responses (73%± 19%) to section-specific questions than the control group (43%± 25%; P< 0.01), meaning that they actually did read more of the books as they claimed, as well as perhaps suggesting that the material they did read was more readily retained. This might seem to confound the validity of the findings, but it actually supports the use of metaphorical teaching: as the authors contend, a treatment will only ever be as good as its uptake, and the data suggest that the uptake on a metaphors booklet is better than for the more conventional education material.
  - Size of treatment effect?
There was an increase in knowledge about pain biology in the Metaphors group but not in the Advice group. In the Metaphors group, the PBQ score moved from 12.1± 4.0 at the initial assessment to 17.0± 3.1 at the second assessment, and 17.0± 3.4 at the 3-month follow-up (effect size Cohen d= 1.7). In contrast, in the Advice group, the PBQ score was 13.1± 4.6 at the initial assessment, 13.5± 4.6 at the second assessment, and 13.5± 4.6 at the 3-month follow-up. In the crossover group, the PBQ score increased to 14.4± 4.0 3 weeks after receiving the Metaphors booklet and 16.6± 3.4 at 3 months.

There was a larger decrease in PCS in the Metaphors group than in the Advice group. In the Metaphors group, the PCS score moved from 13.8± 4.1 at the initial assessment, to 11.7± 3.9 at the second assessment and 10.1 ± 3.0 at the 3-month follow-up. In contrast, in the Advice group, the PCS score was 15.4± 5.8 at the initial assessment, 14.4 ± 5.6 at the second assessment, and 14.5± 5.5 at the 3-month follow-up (effect size Cohen d= 0.7), which does not quite make the 0.8 cutoff for a large effect size. In the crossover group, the PCS score dropped to 10.0± 4.0 three weeks after receiving the Metaphor booklet and 9.9± 3.2 at 3 months.

- Precision of the estimate of the effect?

- The study was not adequately powered to detect differences in pain and disability. Furthermore, the primary endpoints were self-reported measures, which is associated with the potential for reporter bias. The authors make a fair point in stating that it is hard to measure pain without invoking self-report, though perhaps they could have measured changes in need for analgesics or in healthcare visits for pain-related reasons; such analyses would also have shown the effects on several other important clinical outcomes that would have broadened the generalizability of the research results.

<table>
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<th>Endpoint</th>
<th>Result</th>
<th>Significance</th>
<th>ARR</th>
<th>NNT</th>
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<tr>
<td>PBQ score</td>
<td>There was an increase in knowledge about pain biology in the treatment group (12.1± 4.0 to 17.0± 3.1 to 17.0± 3.4) but not in the control (13.1± 4.6 to 13.5± 4.6 to 13.5± 4.6). There was comparable improvement in the treatment arm in the crossover group (13.5± 4.6 to 14.4± 4.0 to 16.6± 3.4)</td>
<td>P&lt;0.01 in all cases</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>PCS score</td>
<td>There was a larger decrease in PCS in the treatment group (13.8± 4.1 to 11.7± 3.9 to 10.1 ± 3.0) than in the control group (15.4± 5.8 to 14.5± 5.5 to 14.5± 5.5). There was comparable improvement to the treatment arm in the crossover group (14.5± 5.5 to 10.0± 4 to 9.9± 3.2)</td>
<td>P&lt;0.01 in all cases</td>
<td>N/A</td>
<td>N/A</td>
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<td>Pain</td>
<td>Improvement was seen in both groups, but no appreciable difference in effect was observed between the treatment arm and the control arm.</td>
<td>P&lt;0.01 for improvement, insignificant for difference</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Disability</td>
<td>Improvement was seen in both groups, but no appreciable difference in effect was observed between the treatment arm and the control arm.</td>
<td>P&lt;0.01 for improvement, insignificant for difference</td>
<td>N/A</td>
<td>N/A</td>
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Can I apply these results to my patient?

- Comparison of my patient to trial patients.

JT would have fallen within the inclusion criteria for the study. She is slightly younger than the mean age (42 years and 45 years for treatment and control, respectively), and the duration of her pain is less than the mean pain duration (25± 19 months and 31± 20 months). She had 12 years of formal education (13± 4 and 12± 5) and was out of work (60% and 72% ) on disability insurance (70%
and 72%). All things considered, the results of this trial should be quite applicable to JT.

- All clinically important outcomes considered.
  - As mentioned above, rates of follow-up with medical care and rates of hospitalization would have been interesting to follow, especially in the long-term. The use of and even patient-perceived need for analgesics would also have been a useful measure of success or failure of this novel method.

- Likely benefits outweigh potential harms and cost?
  - The cost of the treatment is approximately $10.00 (plus shipping and handling) from Amazon.com, and the potential harms appear to be few: though it is impossible to say for certain that the patients in the treatment arm did not end up needing more medical care or using more pain medication, there is no reason to believe that such would be the case, as other research has shown that the primary outcomes of this study are associated with higher pain threshold during physical tasks, normalizing pain beliefs and attitudes, and improving pain and disability outcomes.

References


