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Case Report

Intensive interdisciplinary treatment for a patient with coexisting pain and obesity: A case study

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ABSTRACT

Chronic pain and obesity are topics of increasing concern. When both diagnoses are present in the same patient, treatment can be complicated. This is a retrospective case-study looking at outcomes across the continuum of care for a patient with Grade III Obesity and chronic widespread pain. The patient completed a Pain Rehabilitation Center program. Progression was realised by following a deliberate, daily regimen, allowing for consistent activity despite the presence of significant physical symptoms and emotional distress.

Introduction

Chronic pain and obesity are matters of great concern in the United States and across the world as each diagnosis affects over one-third of the population [1,2]. Current literature suggests a strong association between these comorbid conditions with evidence to support their cumulative impact being worse than their isolated effects [3–5]. The presence of chronic pain complicates the treatment of obesity [6] and obesity complicates the treatment of chronic pain.

Case report

This is the case of a woman with Grade III Obesity and chronic widespread pain on chronic high dose opioids. The patient, a 32-year-old Caucasian female, presented to Mayo Clinic in Florida to see a range of primary and specialty providers (Internal Medicine, Nephrology, Endocrinology, Hepatology, Gynecology, Gastroenterology). She reported a 5-year history of worsening abdominal pain, nausea, constipation, and headaches, along with several sites of arthralgia and myalgia. Her past medical history included chronic kidney disease, dyslipidemia, endometriosis, hypertension, Hashimoto's thyroiditis, and non-alcoholic fatty liver disease. She endorsed several functional deficits in the areas of self-care, home management, work, personal relationships, socialisation, leisure, and recreation. Psychosocially, this was a married woman without children, on medical leave from her full-time position as an executive with a large educational corporation. She held dual bachelor's degrees in psychology and fine arts and reported a desire to return to satisfying and gainful employment. Emotionally, anxiety and depression were also major contributing factors to her poor quality of life. Previously trialed conservative measures included rest, physical therapy, psychological counselling, and various electrical, mechanical, and thermal modalities; all with transient benefit. Past surgical history included multiple laparoscopic and open abdominal procedures and subsequent attempts to remove scar tissue. Pharmacologically, this patient was taking a combination of Dilaudid (immediate release hydromorphone) and Exalgo (extended release hydromorphone) for a total Oral Morphine Equivalence (OME) of 90 mg per day. The combination of her medical conditions and the consequential interventions ultimately led to decreasing function and deteriorating quality of life.

Diagnosis and treatment

Eventually, she was diagnosed with central sensitisation syndrome with features of fibromyalgia and chronic fatigue. **Educational Program.** She was invited to attend a 2-day educational series in the Fibromyalgia Clinic with a stated goal to improve awareness and understanding of her diagnoses. Following treatment, her care provider in that program encouraged her to attend the 3-week behaviourally based program in the Pain Rehabilitation Center (PRC). **Behavioural Program.** Six weeks later, she

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was admitted to the PRC program. This intensive, interdisciplinary, hospital-based outpatient day-treatment program provides the setting and resources to guide and assist the patient's return to an active and fulfilling life. A cognitive-behavioural model serves as the basis for group treatment, which incorporates behavioural health education, medication reduction/discontinuation, stress management, pacing strategies, activity modification, and graded physical reconditioning. More specifically, this patient tapered off of strong medications while participating daily in a supervised graded physical reconditioning program that included 20–30 min of stretching, 30–40 min of aerobic conditioning, and 40–60 min of resistance training with weights and bands. She also participated in 4 h per day of group lectures to learn how to manage her daily activities, sleep, and emotional distress in different and more effective ways.

Follow up care

Upon graduating from the behaviourally based program, the patient was encouraged to maintain her gains by continuing to apply the concepts and principles in her daily life and to defer further intervention for 3–6 months. After six months of abstaining from additional intervention, she underwent laparoscopic sleeve gastrectomy. Her surgeon temporarily restricted her home exercise program to walking, but with guidance from her interdisciplinary treatment team, over the course of the ensuing 4 months, she was gradually able to resume her pre-operative exercise routine in its entirety (see Table 1). A year after graduating from PRC (6 months post bariatric surgery), the patient returned to the clinic for follow-up assessment (see Table 2).

Outcomes

The Center for Epidemiological Studies-Depression Scale (CES-D) is a 30-item questionnaire that assesses mood and feelings of hopelessness. CES-D scores range from 0 to 60 with higher scores indicating more depression. The Pain Catastrophizing Scale (PCS) is a 13-item questionnaire that assesses negative thinking about actual or anticipated pain experiences. PCS scores range from 0 to 52 with higher scores indicating more catastrophic thinking. The Short-Form-36 Health Survey (SF-36) is a questionnaire that assesses health status and well-being. For each of the SF-36 subscales, a score of 50 is the average score for healthy age and sex matched peers. The Multidimensional Pain Inventory (MPI) is a questionnaire that assesses function in people with chronic pain. For each of the MPI subscales, a score of 50 is the average score for age and sex matched peers with chronic pain. The Pain Anxiety Symptom Scale (PASS) is a questionnaire with 4 subscales. Scores for each subscale range from 0 to 25 with higher scores indicating more anxiety.

The patient completed several outcome measures at various points in the course of care. Baseline scores were collected prior to the 2-day program. She underwent Educational Intervention and began the Behavioural Intervention 6 weeks later. Repeat measures, and others, were collected at the beginning and end of the 3-week PRC program. Six months after completing the PRC program, the patient underwent bariatric surgery and continued to implement pain rehabilitation concepts. She returned to PRC for follow-up assessment 6-months post-operatively (1 year after completing the PRC program).

Discussion

By successfully implementing the lifestyle modification tools, she made extensive gains (see Fig. 1 and Table 2) over the course of the 3-week behavioural intervention. Her OME dropped from 90 mg to 0 mg. Her functional capacity increased by 15% as measured by the 6-min Walk Test. Her activity performance and satisfaction improved as demonstrated by increases in the Canadian Occupational Performance Measure (COPM) subscales. Her self-efficacy changed for the better and her depression and anxiety levels pointedly dropped. Additional health benefits were seen in the pre-operative period including weight loss and decrease in A1C and even more substantial changes occurred after the weight loss surgery. A year after surgery the patient was down to 103.5 kg for a BMI of 31.2. All measures of renal function remained relatively unchanged and within normal limits during her course of care.

Raebel et al. [6], in 2013, retrospectively studied a large group of patients that had endured bariatric surgery and found that "relative to the year before surgery, opioid use among chronic opioid users before surgery increased by 13% the first year after surgery and by 18% across 3 postsurgery years". They concluded that there is an unmet "need for proactive management of chronic pain" in patients pursuing bariatric surgery. Cron et al. [7], in 2017, investigated the clinical and financial consequences of preoperative opioid use in abdominal surgeries and found higher costs, increased length of stay, and more complications in patients taking opioids preoperatively. They argued that preoperative opioid use is a modifiable risk factor and their "institution has implemented a preoperative program. . . to counsel patients on the risks of opioids and to attempt to wean opioids preoperatively". The patient in our case study was able to completely wean off of opiate analgesic during the 3-week program and remained off of them except for the immediate post-operative period. Rome et al. [8], in

Table 1
Post-operative modifications to exercise routine with gradual return to full pre-operative program.

Post op time	Static & dynamic stretching	Strength & stability training	Cardiovascular conditioning	Perceived exertion
Week 1	Arms & legs only	None	15 min	Very light
Week 2	Arms & legs only	None	15 min	Very light
Week 3	Arms & legs only	None	20 min	Very light
Week 4	Arms & legs only	None	25 min	Very light
Week 5	Arms & legs only	Without resistance	30 min	Light
Week 6	Add balance	Without resistance	30 min	Light
Week 7	Arms, legs, & balance	Without resistance	30 min	Light
Week 8	Arms, legs, & balance	Add weights	30 min	Light
Week 9	Arms, legs, & balance	Weight training	30 min	Fairly light
Week 10	Arms, legs, & balance	Weight training	35 min	Fairly light
Week 11	Arms, legs, & balance	Add bands	35 min	Fairly light
Week 12	Arms, legs, & balance	Resistance training	35 min	Fairly light
Week 13	Add trunk	Add core stability	35 min	Somewhat hard
Week 14	All	All	35 min	Somewhat hard
Week 15	All	All	35 min	Somewhat hard
Week 16	All	All	35 min	Somewhat hard

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