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Commentary Article

Obesity and orthopaedic surgery

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Abstract

Every orthopaedic surgeon is aware of the potential problems that can arise when operating on a patient with an elevated BMI. This is particularly the case with those involved in total knee and hip replacement procedures. Of course, many overweight patients have a positive outcome from the surgery, but it does come with a number of risks. These include elevated blood loss, along with the potential of the patient developing deep vein thrombosis. Additionally, the time the patient is on the operating table is often extended, as is the recovery time.

Keywords: Orthopaedics, obesity, hip replacement

INTRODUCTION

Dayton Orthopaedic Surgery and Sports Medicine Center state that in total knee replacements, infection occurred more often in obese patients, with an increase of 90%. Deep infection requiring surgical debridement was reported with an increase of 200%. Revision of the total knee arthroplasty, defined as exchange or removal of the components for any reason, occurred more often in obese patients, with an increase of 130% compared to non-obese patients.

52% of total knee replacement and 36% of total hip replacement patients were obese (body mass index ≥ 30). The obese patients were significantly younger, with a higher proportion of obese total knee replacement patients being women. Higher rates of diabetes and hypertension were found in obese patients. Higher postoperative infection rates were observed in patients with BMI 35 or higher.

The risk was 6.7 times higher for infection in obese total knee replacement patients, and 4.2 times higher for obese hip arthroscopy patients. The increased risk of infection in obese patients undergoing total joint arthroplasty must be realized by both the patient and surgeon.

Weight loss ahead of elective orthopaedic surgery often results in a positive impact on the outcome. But of course achieving an acceptable weight loss is not easy and is further impacted by the reduced mobility of TKR and THR patients.

One organisation that is focused on pre-surgery weight loss is Oxford Therapeutics Ltd. They provide an award-winning and medically endorsed weight-loss programme that delivers positive results. The non-invasive, psychology focused treatment doesn't require any dedicated exercise. As a result, a growing number of orthopaedic surgeons and anaesthetists around the world are recommending it to their patients to assist in particular with pre-surgery TKR and THR weight loss. Patients also benefit from revisiting the programme post-surgery, when a reduced level of mobility may result in unwanted weight gain.

The treatment has been developed after in excess of 15,000 1:1 clinical treatment hours of experience, and is the subject of two bestselling books, published by Hay House written by the developers, Martin and Marion Shirran. The books have been endorsed by both Professor Philip Zimbaro, of Stanford University, San Francisco, and Professor Windy Dryden, of Goldsmiths University, in London.

The Shirrans developed the My Weigh Less course as a downloadable version of their original clinic-based, permanent weight-loss treatment, the Gastric Mind Band, which has been extensively reviewed in the press globally and featured in TV reviews in the USA, Australia and the United Kingdom.

Now, the new downloadable format allows patients to access it from anywhere in the world and start their weight-loss journey immediately. There's no need for any expensive meal replacement products, or exercise equipment. The 12 sessions, in MP3 format, are available to download immediately onto a smartphone, tablet, laptop, or desktop computer. Anyone can complete the course without having to leave the comfort and security of their own home.

The course was the culmination of extensive research, along with 'real person' trials and adjustments ahead of the public launch. It incorporates a patient-focused audio introduction by the developers, followed by MP3 audio modules, including seven different hypnosis sessions. Also included is a copy of the Shirrans' Forensic Weight-Loss Questionnaire. The questionnaire was developed over a number of years; the ongoing treatment of the patients is built around the data harvested when clients answer the thought-provoking questions contained in it.

Each of the twelve modules includes an animated whiteboard presentation, designed to reinforce the key elements contained in each session. An added bonus is a number of short interviews with several past clients, including a US attorney, an NHS consultant gynaecologist, and a lady from India who had previously undergone gastric band surgery and failed to achieve the desired weight loss. They each share their personal experiences, and also provide an insight into their own

past issues with food and their weight, before completing the weight-loss therapy.

Details of the Shirrans' weight-loss approach were first presented at Coimbra University in Portugal in 2012. The presentation included their in-house developed, CBT upgrade, PBT. They attended at the invitation of Professor Philip Zimbaro of Stanford University, San Francisco, USA.

Dr Sarah Clarke presented the information and clinical evidence at the 2nd International Time Perspective Psychology conference, which was hosted at Warsaw University in Poland 2014.

Whilst the Shirrans' treatment is based around CBT—or their unique updated version TCBT, as developed by Martin and Marion Shirran, the treatment does incorporate, or underpin, its actions with clinical hypnotherapy. Hypnosis alone will not provide long-term, tangible results, in the weight-loss arena. However, when underpinned with other empirically proven interventions, the results are completely different. Below you can read a summary of their trial results, as compiled by Dr Sarah Clarke.

CLINICAL EVIDENCE SUMMARY OF STUDY

125 participants were selected from a database of clients who had undertaken the Shirrans' treatment for weight loss. The database consisted of some 500 cases, of which 176 had pre-treatment and post-treatment data of those 176, a further 51 had incomplete data sets or had follow-up periods of less than one month, so were omitted.

The study consisted of pre- and post-treatment scores across six different measures, including:

- Weight in kg
- BMI
- Body Fat
- Fat Mass
- Visceral Fat
- Degree of Obesity

The length of follow up was between 1 month and 56 months, with an average follow-up of 8.46 months.

The Study we conducted a paired samples t-test on this data. We found that the difference between the two means for each of the measures was highly significant. In fact, it was .000 across all six. When we calculated the effect sizes, they were on the high end of small for each measure – ranging from 0.36 to 0.48. Nonetheless, although this raises questions about the psychological significance of the changes within the six measures, conclusions should be drawn in the context of the high level of statistical significance. We completed additional investigation of the data. We first looked at age, but found no relationship between the age of our participants and the amount of weight that they lost. It seems that people are just as capable of losing weight in their seventies as they are in their twenties.

We also investigated whether there was a relationship between the weight lost as a result of hypnosis-based treatment and the length of time between treatment and follow up. There was a slight, but weak linear relationship between the two. But there was no relationship between the length of time to follow up and the average monthly weight loss.

Out of the 125 trial people who completed the treatment, 117 lost weight. One person gained.

Of the 117 who lost weight, the average weight lost was 9.67 kg. The average weight lost per month was 1.1 kg.

RESULTS

Based on the sample of clients that we analysed, 84% successfully lost weight. 60% lost more than 5 kg, and 30% lost more than 10 kg of those who lost between 0.1 kg and 4.9 kg, the average number of

months between treatment and follow-up was 5.7. Between 5 kg and 9.9 kg, the average number of months to follow-up was 8.8. 10kg upwards the average follow-up was 9.6 months. These latter two are close to the overall average number of months to follow-up (8.46). This suggests that there is little or no relationship between weight lost and follow-up time. The increased weight loss cannot be accounted for by extra time to lose the weight. Moreover, the average length of time to follow up for the eight individuals who gained weight was 15.75.

EVALUATION OF THE STUDY

The strengths of this study are the large sample size, the consistency and accuracy of the measures, the considerable follow-up times in most cases, the fact that it was the same therapists/treatment in every case.

The limitations of this study are that the follow-up time was not consistent. Although graphs showed no particular relationship between the follow-up time and the weight gained or lost, we did not analyse this part of the data in depth.

Another limitation might be the consistency of the treatment. The database of clients spanned a six-year period, during which Marion

was developing and refining their treatment. Although practice has not changed significantly, it is possible that some variation in the treatment delivery and quality may have occurred over time.

PROPOSED NEXT STEPS

A more in depth analysis of the raw data will now take place to identify and explore any interesting patterns. Some participants attended more than one follow-up session. The relationship to number of follow-ups and overall weight loss was of interest.

It would be useful to have a qualitative element to the study to supplement the numerical measures. As recommended by Dr Kalavana, a food diary would make a useful addition. It would also be useful to gain feedback from clients regarding their use of the upgraded CBT Technique and its role in their dieting orthopaedic surgeons are well aware of all the potential increased risks of side effects and complications involved when operating on patients who have an elevated BMI, and the accompanying health issues that are often associated with obesity. On the positive side, however, as many orthopaedic surgery procedures are elective, it means that patients can take advantage of addressing potential health issues, such as losing some weight, before the date of their operation.