

# Clinical Briefs in Primary Care

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Evidence-based updates in primary care medicine

Online Supplement to *Clinical Cardiology Alert, Critical Care Alert, Hospital Medicine Alert, Infectious Disease Alert, Integrative Medicine Alert, Neurology Alert, OB/GYN Clinical Alert, Primary Care Reports*

Volume 22, Number 6

June 2017

## Spinal Manipulation for Low Back Pain

SOURCE: Paige NM, et al. *JAMA* 2017;317:1451-1460.

Several interventions for low back pain (LBP) have been demonstrated to improve time to resolution modestly, but no particular treatment has been identified that provides a strong therapeutic advantage over another consistently. Analgesics, anti-inflammatory agents, muscle relaxants, exercise, physical therapy, and spinal manipulation therapy (SMT) each have supportive evidence for the efficacy, but SMT has been the object of contentious arguments.

Paige et al reviewed the efficacy and safety of SMT by including 15 randomized, controlled trials (n = 1,711). They concluded that SMT provides a modest statistically significant improvement in pain: approximately 10 points on a 100-point visual analogue scale. They described the harms of SMT as generally transient and minor. Whether the degree of pain reduction attributed to SMT reported here will satisfy many clinicians is questionable. Previous evidence has indicated that at least a 30% reduction in pain from baseline is what patients recognize as clinically meaningful, and these data only indicate a 10% pain reduction. Additionally, the serious adverse effects that have been noted about high-velocity manual medicine techniques (e.g., arterial dissections and paralysis after cervical spine manipulation) occur with insufficient frequency to be reliably detected within such a limited data set. ■

## Surgical Replacement: Younger vs. Older Knees and Hips

SOURCE: Bayliss LE, et al. *Lancet* 2017;389:1424-1430.

Most patients I have seen who have undergone hip or knee replacement experienced prompt restoration of function and marked reductions in pain. In advanced osteoarthritis sufferers who are as yet untreated surgically, the question often becomes “Should I do it sooner or later?” Waiting until later often entails enduring a significant symptom burden as well as limited mobility; doing it sooner may feel premature to patients with moderately disabling symptoms.

Bayliss et al provided substantiation for “doing it later” (i.e., later by one’s chronologic clock). They assessed data on more than 63,000 individuals who had undergone hip or knee replacement. Hip and knee replacements were shown to be very durable, in that more than 95% of hip or knee replacements were functioning 10 years later, and more than 85% were functioning 20 years later.

However, when specifically looking at the relationship between age at intervention and need for revision, they found that study subjects > 70 years of age who underwent joint replacement surgery experienced a seven-fold lower incidence of revision than patients ≤ 50 years of age (5% lifetime revision rate for the former vs. 35% for the latter). Although the joint replacement decision always

should be individualized, these data suggest that we inform potential subjects of the greater likelihood for repeat surgery if initial surgery is performed on patients < 70 years of age. ■

## Liraglutide for Prevention of Diabetes

SOURCE: le Roux CW, et al. *Lancet* 2017;389:1399-1409.

Prevention of progression from pre-diabetes (pDM) to type 2 diabetes mellitus (T2DM) is quite a success story. Essentially, each antidiabetic entity that has been trialed, and some weight loss agents, has provided a substantial reduction in the risk of progression from pDM to T2DM. Untreated, clinicians could expect that (in the United States) 6-10% of untreated pDM patients per year will progress to T2DM if no intervention occurs; that number can be reduced by about 25% through several T2DM medications, including metformin, and even more by an intensive program of diet and exercise.

The newest agent to be added to the list of successful agents is liraglutide. In a study of pDM patients (n = 2,254) randomized to liraglutide or placebo and followed for up to three years, incidence of T2DM was 6% in the placebo group vs. 2% in the liraglutide group.

The study subjects in this trial were enrolled multinationally, including Europe, North and South America, Asia, Africa, and Australia. The dose of liraglutide used would be regarded as the “weight-

loss dose”; that is, liraglutide under the trade name of Victoza is prescribed for treatment of T2DM up to 1.8 mg/day, but under the trade name of Saxenda is prescribed at 3 mg/day for the treatment of obesity. As would be anticipated, liraglutide treatment produced a significant weight loss: approximately 5 kg greater than the placebo group.

Currently, the most popular pharmacologic treatment for prevention of T2DM in patients with prediabetes is metformin. Several other agents have been shown to produce similar effects, although their use would be off-label. ■

## Cardiovascular Consequences of Weight Gain

SOURCE: Bangalore S, et al. *N Engl J Med* 2017;376:1332-1340.

Obesity is recognized as an independent risk factor for numerous health consequences, including hypertension, cardiovascular events, cancer, and osteoarthritis. Whether progressive weight gain is associated with adverse

outcome might be intuitively obvious, but has been less studied. The object of this report by Bangalore et al was to examine the association between weight variability and health outcomes, specifically addressing coronary heart disease.

The Treating to New Targets trial randomized patients with known coronary artery disease (n = 10,001) and a low-density lipoprotein reading of < 130 mg/dL to low-dose atorvastatin (10 mg/day) vs. high-dose (80 mg/day). In this post-hoc analysis, the authors examined the relationship between weight variability and subsequent coronary heart disease events over a mean five years’ treatment.

For every 1.5-1.9 kg increase in body weight from baseline, the risk of incurring a coronary event increased by 4%. The increase in body weight in persons who were normal weight at enrollment was associated with a numerically greater (but not statistically significant) number of coronary events. However, persons who were overweight or obese exhibited marked increases in coronary events proportional to the degree of their weight gain. Clinicians should be vigilant to offer patients with coronary disease advice about optimal weight management. ■

## Efficacy of Mandibular Advancement Devices vs. CPAP

SOURCE: Kuhn E, et al. *Chest* 2017;151:786-794.

Although there are “organic” rewards for the treatment of obstructive sleep apnea (OSA), such as blood pressure reduction in hypertensives, much of the benefit of intervention resides in the quality of life (QOL) category: less daytime fatigue, better concentration, less snoring, etc. Despite such favorable effects, short- and long-term compliance with continuous positive airway pressure (CPAP) often is difficult. How does the efficacy of mandibular advancement devices (MANDs) for QOL compare?

Kuhn et al performed a network meta-analysis of clinical trials (n = 23) that compared CPAP and/or MANDs to inactive control. The outcome of interest was QOL as assessed by the mental and physical components of the SF-36 score. Both CPAP and MANDs resulted in

improved physical and mental segments of the SF-36 score, and there was no statistically significant difference between the two methods in efficacy.

MANDs often been prescribed for patients with less severe OSA (mild-moderate), for patients who could not tolerate CPAP, or for persons for whom CPAP was not effective. These results suggest that MANDs are a viable alternative. The authors recommended that CPAP should remain the first-line treatment for most patients, perhaps because the studies employing MANDs have been restricted to less severe OSA cases. ■

## Exercise-induced Rhabdomyolysis

SOURCE: Brogan M, et al. *Am J Med* 2017;130:484-487.

For exceptionally young clinicians who are unfamiliar with Mae West (1893-1980), she was an actress, playwright, comedian, and screenwriter credited with quotes such as, “When choosing between two evils, I always like to try the one I’ve never tried before,” and, “Too much of a good thing is a really good thing.” However, there are exceptions to all rules, right?

Sometimes, a segment of the population that decides to embrace exercise does too much of a good thing. Brogan et al enlightened us about 46 reported cases of acute rhabdomyolysis that occurred specifically after engaging in the vigorous activity of spinning: the use of stationary cycles that are adjustable for the degree of resistance and steepness of climb.

Even among physically fit women, a substantial amount of time above the ventilatory threshold (the level at which lactate begins to accumulate) is spent during a 45-minute spin class. Of the 46 above-mentioned cases of spin-class related rhabdomyolysis, 42 occurred after the first spinning class (in presumably less-conditioned individuals).

While clinicians endorse the health benefits of engaging in physical activity, patients who decide to choose spinning (cycling) as their exercise method must be cautioned to build exercise intensity gradually rather than doing too much of a good thing. ■

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