

Improvement in sleep patterns after hip and knee arthroplasty: a prospective study in 450 patients

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Background

While the relationship between OA and sleep has been examined, relatively few studies have prospectively assessed sleep before and after hip (THA) and knee arthroplasty (TKA). While improvement in sleep quality is consistently reported in these studies, subject numbers are small, ranging from 25 to 105 subjects. Further, there are conflicting reports on the relationship between sleep quality and pain scores, potentially due to inadequate sample sizes. The relationship between sleep and satisfaction with surgery has not been reported previously.

Methods

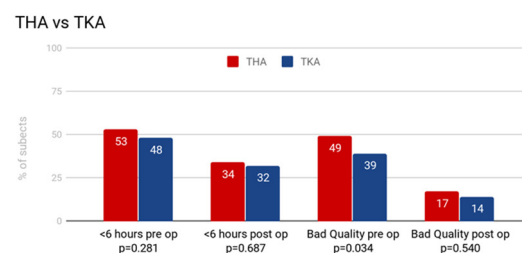
Between July 2016 and June 2018, surgical data and PROMs were collected on 450 subjects before and 12 months after THA or TKA. PROMs included Knee Injury and Osteoarthritis Outcome Score (KOOS), Hip Disability and Osteoarthritis Outcome Score (HOOS), patient satisfaction and 2 questions from the Pittsburgh Sleep Quality Index (PSQI).

Results

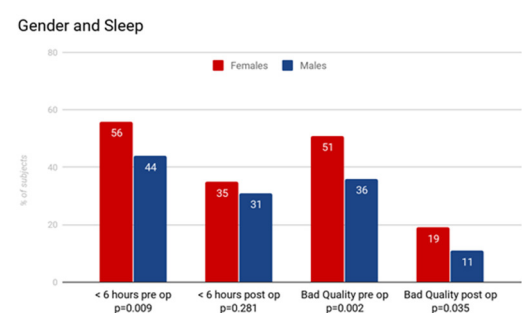
Between July 2016 and June 2018, 450 subjects who underwent primary hip or knee arthroplasty for osteoarthritis completed PROMs including sleep questions before, and at 12 months after surgery. There were 255 THA procedures and 195 TKA procedures. There were 257 females (57%) and the mean age was 70 years (range 42-99 years).

The percentage reporting bad or very bad sleep before surgery reduced significantly from 45% (201/450) preoperatively to 16% (70/450) postoperatively ($p < 0.001$). Of those with bad sleep preoperatively, 78% (157/201) reported improvement postoperatively. Before surgery 230 (51%) patients reported less than 6 hours of sleep. This number diminished to 150 (33%)

at 12 months ($p < 0.001$). Of those reporting <5 hours per night before surgery, 50 (68%) reported an increase in sleep duration.



Sleep quality and duration were worse in females over males, and in THA patients (49%) over TKA patients (39%, $p = 0.034$).



Satisfaction was higher in subjects reporting good sleep quality (353/380, 93%) compared to those reporting bad sleep quality (56/70, 80%) ($p = 0.001$). Sleep was correlated with better HOOS/KOOS scores ($r = 0.2-0.3$) and associated with superior EQ5D scores.

Conclusions

This study found that 1 in 2 report poor sleep quality and sleep duration of less <6 hours before arthroplasty. Poorer measures of sleep were seen in females compared to males, and THA over TKA subjects before surgery. At 1 year significant improvements in sleep quality and duration were observed. For those with poor sleep quality before surgery, three quarters experienced improvement, and for those with sleep duration of <6 hours two thirds experienced improvement after arthroplasty. Measures of sleep were positively associated with measures of pain, symptoms, general health, well-being, and satisfaction with surgery. Improvement in sleep may be considered a realistic outcome of THA and TKA, with important and meaningful positive effects on health and quality of life.



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