Iran J Public Health, Vol. 53, No.1, Jan 2024, pp.248-250

Letter to the Editor

Telehealth and Biological Rhythm: Deficits and Benefits for Orthopedic Postoperative Consultations

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(Received 15 Apr 2023; accepted 26 Apr 2023)

Dear Editor-in-Chief

In the wake of the Covid-19 pandemic, patient visits began to transition to online platforms that provided telehealth capabilities. Ample literature has suggested that postoperative visits can be performed online without a decrease in patient satisfaction. However, there are some deficits of telehealth, such as inability to perform specialized examinations, reduction of a therapeutic patient-physician interaction, and difficulties in technological troubleshooting with elderly populations (1,2). While there is a possibility for both the physician and patient as well as the governments to save money and time in the short term though telehealth, if the online consultation is insufficient, long-term cost savings may be mitigated (Fig. 1).

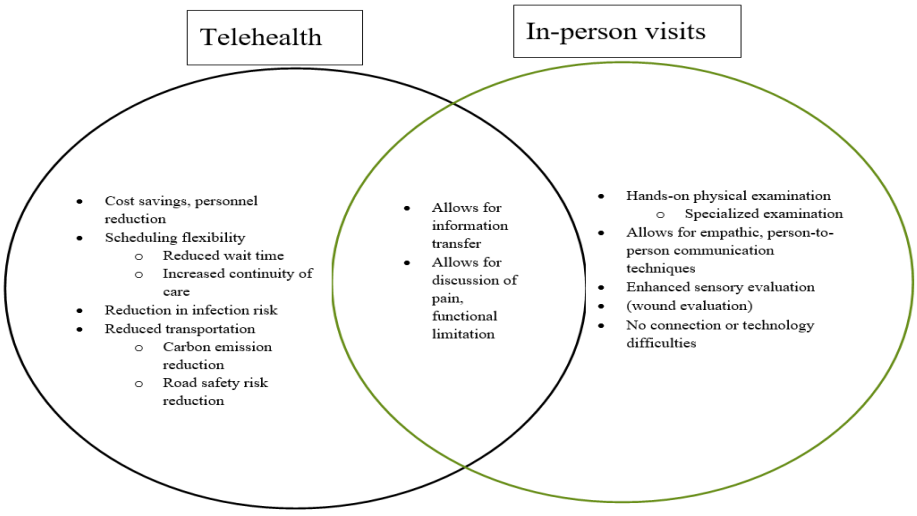

Fig.1: Venn diagram illustrating the benefits of telehealth versus in-person visits for post-operative orthopedic evaluation

Circadian rhythm has been found to be a significant contributor to surgical success, both as a factor related to surgeon performance, and in regard to patient tolerance of the trauma sustained during the procedure (3). A vast body of literature exists describing the health and performance altering effects of sleep deprivation for shift workers, both in medically-related and non-medically-related fields (4). While it may come as no surprise that surgeons may have a suboptimal performance when sleep deprived, emerging evidence suggests that patients may suffer additional physiologic insult from aberrancy in the circadian rhythm brought about by the surgical intervention.

Postoperative circadian rhythm alteration have been shown to correlate to reduced postoperative recovery, especially with regards to restoration of normal sleep wake pattern (5). Moreover, normal preoperative cortisol rhythms have been found to be significantly phase-shifted in the postoperative period (6). In recognition of the importance of biological rhythm for surgical outcome, various interventions have been geared towards mitigating the effects of circadian rhythm alteration in surgical patients (7).

Given the well-documented contribution of aberrancies in circadian rhythm to poor outcomes following procedures across multiple surgical subspecialties, the rise of telehealth and online communication has been postulated as a potential ameliorative option to improve circadian rhythm adherence for both surgeons and patients. If preoperative and postoperative visits could be performed remotely at the convenience of both the surgeon and the patient, further alterations to sleep wake cycles could potentially be avoided. However, surgeons who may have patients to see in the clinic or have surgical cases which begin early in the day may have to perform their rounding obligations in the early morning hours, oftentimes disturbing patients who are significantly phase shifted after their surgical procedure and who are in deep phases of sleep during rounds. If rounding could be done remotely later in the day when they have awoken, patients may benefit substantially (8).

The literature regarding telehealth in the postoperative setting is mixed. An overall high satisfaction rating was found in a cohort of patients with telemedical follow up after orthopedic trauma surgery (9).

In contradiction, other authors have highlighted that challenges of telehealth that still present barriers to its adoption, including familiarity with this new technology, the inability to complete a physical examination, and remaining regulatory barriers, such as insurance reimbursement, patient privacy, and confidentiality (10).

Future research should aim to continue to delineate the role of telehealth in the postoperative setting as we seek to adapt to an ever-changing landscape of provision of medical and surgical care. Moreover, future research should continue to explore the contribution of other biological rhythms to surgical outcomes, including menstrual cycles and normal blood pressure fluctuations.

Conflict of Interest

The authors declare that there is no conflict of interests.

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