

Title: Using a novel commercial telehealth platform to deliver pain management care and guided opioid tapering among post-operative head and neck cancer patients

Authors: Maryam Hussain, Beau Norgeot, Ahmed Zaafran, Salahadin Abdi, Tayab Andrabi, Katy French, Carol Lewis, Uzundu Osuagwu, Shannon Popovich, Anis Rashid, Carin Hagberg, Dhanalakshmi Koyyalagunta

Synopsis: Head/neck cancer patients experience high pain after surgery, putting them at risk for persistent postoperative opioid use. Using a comprehensive CBT-facilitated telehealth platform seems to be beneficial and approachable for head/neck cancer patients (n = 6) to adequately manage pain after surgery, and ultimately taper 100% off post-surgical opioids. Reduction and cessation of new and persistent opioid use after surgery is possible for head/neck cancer patients.

Background:

Successful postsurgical recovery and rehabilitation is contingent on appropriate and adequate pain control and management.¹ However, pain control can be particularly challenging for cancer patients, with around 50% of cancer patients reporting acute pain after surgery. Pain prevalence is especially high (~70%) among head and neck cancer patients.² Because of pain complexities, opioids are the traditional approach to mitigate pain levels and provide adequate pain management.³ However, opioids have known side effects, such as postoperative gastrointestinal and bowel issues, impaired mobilization, and sedation.⁴ These side effects can indeed be barriers to postoperative care and recovery. Furthermore, a growing body of research on acute postoperative opioid use indicates a correlation between exposure to postoperative opioids and long-term or chronic dependency on opioid use.⁵⁻⁷ Beyond the aforementioned side effects of opioids, chronic postoperative opioid use has long-lasting and far-reaching social, physical, and financial consequences, which contribute to the ongoing opioid epidemic in the United States.⁸

Cognitive behavioral therapy (CBT) is effective for patients with chronic pain (e.g. pain reduction, tapering from postoperative opioids) and improves quality of life (QoL),⁹; however, with the ongoing COVID19 pandemic, patients may not have access to traditional CBT modalities.¹⁰ As such, with the advent of internet-based interventions, telehealth is a promising alternative to CBT delivered in-person,¹¹ and may be efficacious to delivering a much needed intervention in the weeks following surgery.

Therefore, using a commercial telehealth platform to deliver CBT-facilitated tapering protocol within the immediate postoperative period for head/neck cancer patients we evaluated the efficacy of the platform to engage postoperative head/neck surgical patients (Aim 1). We also examined the extent to which this telehealth program could prevent new persistent opioid use amongst opioid naive patients (Aim 2). Finally, we evaluated the extent to which the telehealth program improved quality of life and reduced pain levels during the tapering process, thereby mitigating their risk of chronic dependency (Aim 3).

Methods:

Study procedures were conducted after IRB approval at the institution where patients were having surgery and being recruited for the study. The study is also registered at clinicaltrials.gov. For the purposes of this abstract, we present findings from the head/neck cancer patients who have been enrolled and completed the ongoing study.

Prior to surgery, patients were approached and consented in-person by a research coordinator at a perioperative clinic within a major cancer center. Patients understood that they would taper after surgery, and that a licensed therapist with expertise in using CBT-facilitated tapering would be guiding them through that journey. After surgery and discharge from the hospital, consented patients received up to 4 weeks (1 x/week) of the telehealth program with a licensed therapist or social worker. Upon completion of the program, patients were invited for a post-1st appointment 90-day follow-up. All post-surgical interactions occurred via a HIPAA-compliant virtual platform.

Results:

We analyzed data on 6 head/neck cancer patients (median age = 60, range 28 -81), most (n =5) were male. The cancer types of these patients are the following: lymphadenopathy, malignant neoplasm of tonsil, papillary thyroid carcinoma, squamous cell carcinoma of oropharynx, and osteoradionecrosis of jaw. None of these patients were on opioids within 30 days prior to surgery (opioid naive). On average, patients were prescribed 30-90 MME opioids after surgery (median 30 MME). Within the 4-week telehealth program, five of the six patients had completely tapered off their prescribed opioids, with the remaining patient completely tapered off by the 90-day follow-up. Furthermore, patients reported no pain (VAS = 1) by the 90-day follow-up (post-surgical baseline VAS = 3). Additionally, patients reported complete reduction in depressive (PHQ9 = 0) and anxiety symptomatology (GAD7 = 0), and a complete improvement in Quality of Life (EQ5D5L = 1) at the 90-day follow-up. We excluded one patient who had tapered by the 4-week mark from the 90-day follow-up due to ongoing radiation treatment, which was an established exclusion criterion.

Discussion:

Using a comprehensive CBT-facilitated telehealth platform seems to be beneficial and approachable for head/neck cancer patients to adequately manage pain after surgery, and ultimately wean off post-surgical opioids effectively. As such, reduction and cessation of new and persistent opioid use after surgery is possible for head/neck cancer patients using a commercial telehealth platform to deliver the intervention. From the authors list, three are funded by and have equity in the commercial sponsor of this study, and one is an advisor of and provides consultation for the commercial sponsor of this study.

References

1. Capdevila, X.; Barthelet, Y.; Biboulet, P.; Ryckwaert, Y.; Rubenovitch, J.; d'Athis, F. Effects of perioperative analgesic technique on the surgical outcome and duration of rehabilitation after major knee surgery. *Anesthesiology* **1999**, *91*, 8–15.
2. van den Beuken-van Everdingen, M.H.J.; de Rijke, J.M.; Kessels, A.G.; Schouten, H.C.; van Kleef, M.; Patijn, J. Prevalence of pain in patients with cancer: A systematic review of the past 40 years. *Ann. Oncol.* **2007**, *18*, 1437–1449.
3. Hinther, A.; Nakoneshny, S.C.; Chandarana, S.P.; Wayne Matthews, T.; Dort, J.C. Efficacy of postoperative pain management in head and neck cancer patients. *Otolaryngol. Head Neck Surg.* **2018**, *47*, 29.
4. Nimmo SM, Foo IT, Paterson HM. Enhanced recovery after surgery: pain management. *Journal of surgical oncology.* **2017 Oct**;116(5):583-91.
5. Hinther, A.; Abdel-Rahman, O.; Cheung, W.Y.; Quan, M.L.; Dort, J.C. Chronic Postoperative Opioid Use: A Systematic Review. *World J. Surg.* **2019**, *43*, 2164–2174.
6. Clarke, H.; Soneji, N.; Ko, D.T.; Yun, L.; Wijesundera, D.N. Rates and risk factors for prolonged opioid use after major surgery: Population-based cohort study. *BMJ* **2014**, *348*, g1251.
7. Pang, J.; Tringale, K.R.; Tapia, V.J.; Moss, W.J.; May, M.E.; Furnish, T.; Barnachea, L.; Brumund, K.T.; Sacco, A.G.; Weisman, R.A.; et al. Chronic Opioid Use Following Surgery for Oral Cavity Cancer. *JAMA Otolaryngol. Head Neck Surg.* **2017**, *143*, 1187–1194.
8. Damiescu R, Banerjee M, Lee DY, Paul NW, Efferth T. Health (care) in the crisis: reflections in science and society on opioid addiction. *International journal of environmental research and public health.* **2021 Jan**;18(1):341.
9. McCracken LM, Turk DC. Behavioral and Cognitive–Behavioral Treatment for Chronic Pain. *Spine.* **2002 Nov**;27(22):2564–73.
10. Murphy R, Calugi S, Cooper Z, Dalle Grave R. Challenges and opportunities for enhanced cognitive behaviour therapy (CBT-E) in light of COVID-19. *The Cognitive Behaviour Therapist.* **2020**;13.
11. Dario AB, Moreti Cabral A, Almeida L, Ferreira ML, Refshauge K, Simic M, et al. Effectiveness of telehealth-based interventions in the management of non-specific low back pain: a systematic review with meta-analysis. *The Spine Journal.* **2017 Sep**;17(9):1342–51.