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Using virtual reality with morphine to reduce the pain of dressing change in burn patients

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To the Editor

Burn injuries are caused by the harmful impact of hot materials (in either liquid or solid form), radiation exposure, radioactivity, electric shock, friction, or chemical contact on the skin or underlying tissues [1-3]. Annually, burns lead to the demise of 265,000 individuals globally. The healthcare system in the United States bears an approximate annual expense of \$486,000 towards burn injuries, with \$3275 thousand linked to fires and \$2745 thousand resulting in the loss of the victim's life [1]. Additionally, burns are among the primary causes of morbidity, necessitating extended hospital stays and protracted recovery periods [3, 4]. Burn victims commonly undergo pain, which has distinct physical and psychological components and the possibility of evolving into a chronic condition [5-8]. Pain management strategies must be individualized to address the varying intensity of pain experienced by burn patients. Medications that maintain stable therapeutic blood levels should be utilized to control background pain, while fast-acting analgesics should be employed to manage breakthrough pain [9]. In addition to these traditional methods, technological progress has led to utilizing virtual reality (VR) in burn treatment as a complementary immersive therapy. VR has been found to mitigate pain, anxiety, and symptoms of depression and enhance treatment adherence [1, 9]. Hence, a systematic review [1] discovered that the utilization of VR in burn treatment can reduce the pain and anxiety of burn patients, particularly when employed in conjunction with pharmacological analgesics. The advantages

of VR have been established regarding its ability to increase distraction, resulting in patients experiencing less pain intensity, reduced time spent thinking about pain, and greater immersion. This method can facilitate treatments such as dressing changes and physiotherapy [1]. Nevertheless, a randomized clinical trial conducted in Australia [9] to examine the efficacy of VR relaxation in reducing pain and anxiety when combined with patient-controlled analgesia (PCA) morphine in burn patients undergoing dressing changes. The study demonstrated that patients who received PCA morphine alone had significantly lower pain levels during the dressing change compared to those who received VR relaxation in addition to PCA morphine infusion [9].

In sum, research on the efficacy of analgesics such as morphine used alone or in combination with VR for pain relief during dressing changes is scarce and contradictory. Given the importance of pain management, more evidence-based research is required to determine the best method for reducing pain in burn patients while dressing changes are needed.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work:

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