SAR TURNING POINTS

Exploring the Multiple Roles of Acupuncture in Alleviating the Opioid Crisis

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Editor's Note: This column continues our quarterly Turning Points series from the Society for Acupuncture Research (SAR). Author Jiang-Ti Kong, MD, a member of the Board of Directors of SAR, is a pain management specialist, anesthesiologist, and medical acupuncturist at Stanford University School of Medicine. In addition to teaching, research and a conventional pain management practice, Dr. Kong leads the acupuncture service at Stanford Pain Management Center. Her commentary was stimulated by a three pronged strategy on the opioid crisis authored by leaders of the USA National Institutes of Health (NIH) and National Institute on Drug Abuse (NIDA) published in October 2017 in the New England Journal of Medicine. —John Weeks, Editor-in-Chief

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AS AN ANESTHESIOLOGIST, pain management specialist, and acupuncturist, I have had the privilege of taking care of patients in a variety of settings and also of witnessing the impact of the opioid crisis that is sweeping across the United States. Drawing on expert opinions from multiple disciplines, as well as my personal experiences, I believe that there is great potential for acupuncture researchers and practitioners to contribute significantly to the alleviation of this opioid crisis. Some of these are presently underexplored.

Currently, >90 Americans die each day from overdosing on opioids and >1,000 a day are treated in the emergency room

for opioid abuse. Prescriptions for opioids have quadrupled since 1999 and so have the rates of drug abuse and deaths related to opioids.¹ Many factors have contributed to this sharp increase in opioid prescriptions, including the previous assumption in the late 1990s that most pain conditions were medically undertreated, followed by approval of long-acting opioids such as OxyContin in the commercial market.^{1–3} In addition to the obvious costs associated with lost lives and medical treatments, opioid abuse also leads to profound economic and emotional burdens to the individuals and families affected. It is, therefore, imperative

that we come up with timely and effective strategies to ameliorate and eventually halt this crisis.

In the October 2017 issue of the *New England Journal of Medicine*, Dr. Nora Volkow, the director for the U.S. National Institute of Drug Abuse, and Dr. Francis Collins, the director of the U.S. National Institute of Science, outlined three strategies to deal with the opioid epidemic.³ The first strategy involves overdose reversal interventions, thereby reducing the damage caused by circulating opioids. Opioid overdose leads to respiratory suppression, which, if untreated, leads to death. Current standard of care is intravenous or intranasal naloxone, which works by competitively binding to the μ -opioid receptor. Dr. Volkow outlined the development of additional pharmacologic agents and wearable stimulation devices targeting other receptors/nerve structures to protect against respiratory depression. The second strategy involves direct treatments of opioid addiction. Again, outside of the current standard of care (methadone, buprenorphine, and long-acting naltrexone plus psychosocial support), Dr. Volkow presented the development of new formulations and drug targets, as well as vaccines and monoclonal antibodies against some of the most potent opioids. Last but not least, the need to develop and evaluate non-addictive treatments of chronic pain was emphasized. A variety of treatments were listed, such as new classes of nonopioid medications, various stimulation technologies, and a broader role for precision medicine, which aims to deliver more patient-specific and thus more effective treatment of pain.

Although “nonaddictive treatments of chronic pain” is listed as the third objective, it is a key component in the war against the opioid crisis. Multidisciplinary, integrative, and individualized care has long been advocated for the treatment of chronic pain as exemplified by the biopsychosocial model.⁴ This approach is particularly relevant in the setting of the opioid crisis.⁵ Recent studies have established that acupuncture is more effective than standard care and placebo in treating multiple chronic pain conditions.⁶ As such, several guidelines and organizations have already endorsed acupuncture as an important part of the multidisciplinary approach to manage chronic pain.^{7–9} Therefore, acupuncture can play a significant role in the third strategy in the war against the opioid crisis outlined by the directors of NIDA and NIH.

While recognizing the role of acupuncture in managing chronic pain, which has been extensively investigated in the past, *I'd like also to bring the reader's attention to other, less explored applications of acupuncture that are also relevant to the war on opioids, in the context beautifully outlined by Drs. Volkow and Collins.*

First, the transition from acute to chronic pain presents a critical time for interventions. Two great examples of such transitions are the immediate postoperative period¹⁰ and the emergency room,¹ where acute pain conditions are sometimes hastily treated with potent opioids. Studies have shown that increased consumption of opioids in these settings can lead to long-term opioid dependence.¹¹ Although clinical trials have shown neuroaxial blocks, local anesthetics, and intravenous nonopioid medications can reduce opioid use,^{10,11} few large randomized, controlled trials have evaluated acupuncture in such acute pain settings, despite the presence of pilot studies demonstrating feasibility and effectiveness of acupuncture in treating acute pain.^{12–14} More studies are needed to better

define the opioid sparing effect of acupuncture in the acute pain setting, and potentially compare acupuncture with established modalities in managing acute pain.

Second, perhaps less well known to the general public, is the fact that acupuncture has been used to treat addiction and substance abuse. Electroacupuncture, known to increase the production of endogenous opioids, was shown to reduce the symptoms of opioid withdrawal in both animal and human pilot studies.^{15,16} Furthermore, auricular acupuncture, delivered by the National Acupuncture Detoxification Association (NADA) protocol, has been used extensively to treat drug abuse disorders.^{17,18} Despite these existing data, a cursory search of the literature reveals few recent studies of proper design and sample size that address the effectiveness or define the extent of acupuncture in treating opioid addiction. The author is aware of one upcoming study from the State of Maine, where a pilot project was funded to examine the role of NADA as part of the state's response to the opioid crisis.¹⁹ More studies are clearly needed to examine the roles of various acupuncture treatments (NADA, electroacupuncture, etc.) in treating opioid addiction.

As acupuncture researchers and practitioners, we have the potential to make meaningful contributions to the war against the opioid crisis. Aside from continuing to utilize acupuncture in the treatment of chronic pain, great opportunities exist for us to better define the role of acupuncture in sparing opioids in the treatment of acute and chronic pain, as well as in treating opioid addiction. Finally, emulating Dr. Volkow who called for strong partnership between public and the private sector, we similarly also encourage partnerships between acupuncture practitioners who have access to a great variety of patients and skills, and the conventional medical institutions (i.e., hospitals and medical schools) who have the necessary resources to support high-quality clinical and basic research. As an example, the National Pain Strategy also urged collaboration with integrative healthcare professions.²⁰ Such collaborations between the acupuncture community and conventional medical research entities will potentially yield beneficial results to both advance our science and deliver, better, more integrated care.

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