

Opioid Prescription by Primary Health Care: Indications, Adverse Events, and Toxicity Management

Manal Abdulaziz Murad^{1*}, Hassan Hamdan Alalwani², Mohammed Ahmad Al Ahmari³, Ahmad Hamza Khalid⁴, Misfer Mohammed Alqahtani⁵, Turki Hadi Alfai⁵, Khalid Ibrahim Aseeri⁶, Bander Moabred Alsayed⁷, Ali Mosallam Alsolami⁸, Naima Abdulaziz Alkhulaiwi⁹ and Alwaleed Fayduallah Alidriss¹⁰

¹Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia

²Department of Emergency Medicine, King Faisal Hospital, Mecca, Saudi Arabia

³Primary Health Care, Ministry of Health, Abha, Saudi Arabia

⁴Department of Family Medicine, King Faisal Medical Complex, Taif, Saudi Arabia

⁵College of Medicine, King Khalid University, Abha, Saudi Arabia

⁶Department of Family Medicine, Mohayel General Hospital, Aseer, Saudi Arabia

⁷Primary Health Care, King Abdullah Medical Complex, Jeddah, Saudi Arabia

⁸Epidemiological surveillance Unit, Public Health Administration, Jeddah, Saudi Arabia

⁹Dammam Medical Dispensary, Ministry of Health, Dammam, Saudi Arabia

¹⁰Maternity and Children Hospital, Mecca, Saudi Arabia

***Corresponding Author:** Manal Abdulaziz Murad, Assistant Professor and Consultant of Family Medicine, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia.

Received: July 11, 2019; **Published:** July 23, 2019

Abstract

Opioids were used in the medical field for the treatment of pain. Primary health care providers prescribe opioids for chronic non-cancer pain such as arthritis, back, abdominal and neuropathic pain and fibromyalgia. The fear of the common opioids side effects-mainly addiction- raised the concerns for the safety of opioids compared to its potency in pain blocking compared to other analgesics. Knowledge of opioids consequences and high-risk groups associated with their adverse events is essential among primary care providers.

Keywords: Opioids; Primary Care; Indications

Introduction

Opioids are used before written history. Since their discovery around 3400 B.C. by the Sumerians, they have been used in the medical field for the treatment of pain [1]. Over the last two decades, there was a noticeable increase in prescribed opioids especially for chronic non-cancer pain patients [2-6], which is accordingly accompanied by an increase in opioid-related mortality and morbidity [3]. The estimated cost of prescribed opioids misuse is considered to be \$8.6 billion [7]. In the United States, 15 million people misused prescription opioids in 2013 [8]. During the period between "1999 - 2010", death caused by prescribed opioids overdose quadrupled. Interestingly most of these deaths were unintentional and only one in five was of undetermined intent [6]. The misuse of opioids is defined as using them

in a way other than how they were prescribed [9]. This includes forged prescription, non-medical use and using illicit market places for administration, which could be for different reasons including increasing income, treating pain and enhancing pleasure. Such attitudes have increased the rates of opioids addiction significantly [10-12]. According to the Centers for Disease Control and Prevention (CDC) and the US Department of Health and Human Services (HHS), the overdose deaths caused by prescribed opioids are considered an epidemic [6]. The increase in mortality associated with increased prescribed opioids has been also reported in several countries including the United Kingdom (UK), Australia and Canada [3-5].

Primary care physicians are the largest opioid prescribers in the United States [13,14]. This withstands that pain is the most common complaint of primary care patients with 22% of them reporting persistent pain [15,16]. There's an increasing number of governmental policies organizing and monitoring opioids prescription [17-20]. In the United States, primary care units are working with the American Academy of Pain Medicine (AAPM), the American Pain Society (APS), and the Centers for Disease Control and Prevention guidelines to implement policies that enhance opioid safety [17,21,22]. Therefore, we aimed to review opioid indication, side effects, and management which will help primary care physicians for selecting appropriate opioids according to patients needs.

Methods

We conducted an electronic database search for suitable studies till July 2019 in five databases including Google Scholar, Scopus, Web of Science (ISI), PubMed, and Medline. A manual search of references was done to detect any possible related papers. We included all studies reporting opioid prescription in primary health care setting with no restriction on language or year of publication.

Indications

Opioids exert their action through different mechanisms by blocking the transmission of pain impulses through inhibition of neurotransmitters and adenylate cyclase in addition to pre and post-synaptic hyperpolarization through increasing outward movement of potassium (K⁺) [23]. The prescription of opioids by primary health care physician varies according to pain intensity, type of pain and ethnic disparities [24]. Moreover, several factors alternate with increasing the dose for each patient that differs based upon the presence of comorbidity, increasing pain intensity and adjuvant therapy hindering opioids action [25]. Administration of opioids in primary health care unit is due to various physiologic and pathologic types of pain. In a cross-sectional study, opioids were used for several types of pain originates from trauma, non-arthritis and arthritis joints, abdomen, back pain in addition to rheumatic and neuropathic pain [26]. Moreover, in a population-based study in the USA, opioids administration from primary health care unit was due to osteoarthritis, rheumatoid arthritis, fibromyalgia, sciatica, neuropathic pain, spine pain, and lumbago [24]. In the same context, Chelminski, *et al.* [27] indicated that the use of opioids from primary health care unit stems from different types of pain such as spinal, abdominal, neuropathic and arthritis pain. Furthermore, diabetic neuropathy, headache, spinal stenosis, and post-surgical pain were the common etiologies for opioid intake by patients [28].

Adverse events

Although prescription of opioids showed a massive improvement in chronic pain management, the raised concerns of the increased opioids side effects through the past decade have influenced the treatment safety and efficacy among patients. Among all side effects, opioids' addiction comprises the most dangerous and lethal side effect associated with opioids treatment. Moreover, the euphoric sensation after opioid intake may increase the need for larger doses and the patient may target illegal users for more satisfaction [29,30]. Not only opioids' addiction is responsible for significant mortality but also associated with an increase in emergency department visits and neonatal abstinence syndrome [31,32]. Furthermore, opioids usage correlated with high degrees of psychiatric disabilities. In a cohort study conducted by Kobus and colleagues, higher doses of opioids use is associated with an increased incidence of depression, anxiety, and post-traumatic stress disorders compared to lower opioids dose and controls [33]. Moreover, patients allocated to opioids possess an altered sleep pattern rather than the placebo group [34]. In addition, gastrointestinal tract (GIT) symptoms such as nausea, skin rash, decreasing appetite, correlated with opioids intake [26].

Toxicity management

The dangerous consequences associated with opioids use indicated the need for new strategies for limiting the fatal side effects. Prevention of physicians' malpractice of opioids prescription and detecting patients at high risk of opioids complications offers a fundamental role in the management of the opioids' misuse. The increasing knowledge from the primary care physician about etiologies for opioids prescription, doses, and common side effects plays a substantial role in the management of opioid's toxicity. Furthermore, if the diagnosis is still unknown, primary health care providers should refer the patient to specialists where adequate care can be obtained and prevent the non-beneficial prescription of opioids treatment [35]. Cautious opioids treatment, limiting the use as a first-line treatment, assessing the levels of individual drug metabolism in addition to the existence of caregiver in home can be considered as a potential strategy for opioids' use in older patients [36]. Moreover, community-based programs elicit a favorable effect towards increasing the patients' awareness and knowledge for opioids side effects associated with increasing the dose, which results in a reduction in the incidence of opioids' addiction among individuals. Despite increasing the awareness for the patient and the primary health care physician for reducing opioids side effects, treatment modalities constitute a corner in management of opioids' toxicity. Patients identified with chronic opioids use must be treated with one of opioids antagonists. Several studies have tested the safety and efficacy of the opioids antagonist such as buprenorphine administered by chronic opioid addicts [37-39]. Moreover, emergency department initiated-buprenorphine is associated with more adherence to addiction treatment at two months rather than referral or brief intervention groups; however the results were not statistically significant at 6 and 12 months. This indicates the favorable effect of rapid emergency treatment of addicts with buprenorphine as a good therapeutic agent for short term outcomes [38].

Conclusion

Opioids' prescription by primary care providers is indicated in chronic non-cancer pain; however, identifying patients at risk of opioids complications is essential for decreasing the negative consequences associated with opioids use such as addiction.

Acknowledgments

None.

Conflict of Interest

None.

Bibliography

1. Rosenblum A., et al. "Opioids and the Treatment of Chronic Pain: *Controversies*, Current Status, and Future Directions". *Experimental and Clinical Psychopharmacology* 16.5 (2008): 405-416.
2. Fischer B., et al. "Non-Medical Prescription Opioid Use, Prescription Opioid-Related Harms and Public Health in Canada: An Update 5 Years Later". *Canadian Journal of Public Health* 105.2 (2014): 146-149.
3. Gomes T., et al. "The Burden of Premature Opioid-Related Mortality". *Addiction* 109.9 (2014): 1482-1488.
4. Handley SA., and RJ Flanagan. "Drugs and Other Chemicals Involved in Fatal Poisoning in England and Wales During 2000 - 2011". *Clinical Toxicology* 52.1 (2014): 1-12.
5. Rintoul AC., et al. "Increasing Deaths Involving Oxycodone, Victoria, Australia, 2000-09". *Injury Prevention* 17.4 (2011): 254-259.
6. Volkow ND., et al. "Medication-Assisted Therapies--Tackling the Opioid-Overdose Epidemic". *New England Journal of Medicine* 370.22 (2014): 2063-2066.

7. Strassels SA. "Economic Burden of Prescription Opioid Misuse and Abuse". *Journal of Managed Care Pharmacy* 15.7 (2009): 556-562.
8. Lipari RN, et al. "Substance Use and Mental Health Estimates from the 2013 National Survey on Drug Use and Health: Overview of Findings". The Cbhsq Report. Rockville (MD): Substance Abuse and Mental Health Services Administration (US) (2013): 1-10.
9. Vijayaraghavan M, et al. "Primary Care Providers' Judgments of Opioid Analgesic Misuse in a Community-Based Cohort of Hiv-Infected Indigent Adults". *General Internal Medicine* 26.4 (2011): 412-418.
10. Levi-Minzi MA, et al. "Under Treatment of Pain: A Prescription for Opioid Misuse among the Elderly?" *Pain Medicine* 14.11 (2013): 1719-1729.
11. Inciardi JA, et al. "Mechanisms of Prescription Drug Diversion among Drug-Involved Club- and Street-Based Populations". *Pain Medicine* 8.2 (2007): 171-183.
12. Katz NP, et al. "Foundations of Opioid Risk Management". *Clinical Journal of Pain* 23.2 (2007): 103-118.
13. Volkow ND, et al. "Characteristics of Opioid Prescriptions in 2009". *JAMA* 305.13 (2011): 1299-1301.
14. Chen JH, et al. "Distribution of Opioids by Different Types of Medicare Prescribers". *JAMA Internal Medicine* 176.2 (2016): 259-261.
15. Cherry DK, et al. "National Ambulatory Medical Care Survey: 2006 Summary". *National Health Statistics Reports* 6.3 (2008): 1-39.
16. Gureje O, et al. "A Cross-National Study of the Course of Persistent Pain in Primary Care". *Pain* 92.1-2 (2001): 195-200.
17. Chou, R, et al. "Clinical Guidelines for the Use of Chronic Opioid Therapy in Chronic Noncancer Pain". *Journal of Pain* 10.2 (2009): 113-130.
18. Rutkow L, et al. "Effect of Florida's Prescription Drug Monitoring Program and Pill Mill Laws on Opioid Prescribing and Use". *JAMA Internal Medicine* 175.10 (2015): 1642-1649.
19. Paone, Denise, et al. "Decrease in Rate of Opioid Analgesic Overdose Deaths-Staten Island, New York City, 2011-2013". *Morbidity and Mortality Weekly Report* 64.18 (2015): 491-494.
20. Gilson AM and DE Joranson. "U.S. Policies Relevant to the Prescribing of Opioid Analgesics for the Treatment of Pain in Patients with Addictive Disease". *Clinical Journal of Pain* 18.4 (2002): S91-8.
21. Manchikanti, L, et al. "American Society of Interventional Pain Physicians (Asipp) Guidelines for Responsible Opioid Prescribing in Chronic Non-Cancer Pain: Part I--Evidence Assessment". *Pain Physician* 15.3 (2012): S1-65.
22. Dowell, D, et al. "Cdc Guideline for Prescribing Opioids for Chronic Pain - United States, 2016". *MMWR. Recommendations and Reports* 65.1 (2016): 1-49.
23. Chahl Loris A. "Opioids--Mechanism of Action". *Australian Prescriber* 19.3 (1996): 63-65.
24. Becker William C, et al. "Racial Differences in Primary Care Opioid Risk Reduction Strategies". *The Annals of Family Medicine* 9.3 (2011): 219-225.
25. Sinatra Raymond. "Opioid Analgesics in Primary Care: Challenges and New Advances in the Management of Noncancer Pain". *The Journal of the American Board of Family Medicine* 19.2 (2006): 165-177.

26. Dillie Kathryn Sullivan, *et al.* "Quality of Life Associated with Daily Opioid Therapy in a Primary Care Chronic Pain Sample". *The Journal of the American Board of Family Medicine* 21.2 (2008): 108-117.
27. Chelminski Paul R., *et al.* "A Primary Care, Multi-Disciplinary Disease Management Program for Opioid-Treated Patients with Chronic Non-Cancer Pain and a High Burden of Psychiatric Comorbidity". *BMC Health Services Research* 5.1 (2005).
28. Reid M Carrington, *et al.* "Use of Opioid Medications for Chronic Noncancer Pain Syndromes in Primary Care". *Journal of General Internal Medicine* 17.3 (2002): 17-179.
29. White Jason M. "Pleasure into Pain: The Consequences of Long-Term Opioid Use". *Addictive Behaviors* 29.7 (2004): 1311-1324.
30. Upshur Carole C., *et al.* "Primary Care Provider Concerns About Management of Chronic Pain in Community Clinic Populations". *Journal of General Internal Medicine* 21.6 (2006): 652-655.
31. Patrick Stephen W., *et al.* "Neonatal Abstinence Syndrome and Associated Health Care Expenditures: United States, 2000-2009 trends in Neonatal Abstinence Syndrome". *JAMA* 307.18 (2012): 1934-1940.
32. Abuse Substance. "Mental Health Services Administration, Drug Abuse Warning Network, 2011: National Estimates of Drug-Related Emergency Department Visits". HHS publication no. (SMA) 13 (2013): 4760.
33. Kobus, Amy M., *et al.* "Correlates of Higher-Dose Opioid Medication Use for Low Back Pain in Primary Care". *The Journal of Pain* 13.11 (2012): 1131-1138.
34. Shaw Isabelle Raymond, *et al.* "Acute Intravenous Administration of Morphine Perturbs Sleep Architecture in Healthy Pain-Free Young Adults: A Preliminary Study". *Sleep* 28.6 (2005): 677-682.
35. Binswanger Ingrid A., *et al.* "Overdose Education and Naloxone for Patients Prescribed Opioids in Primary Care: A Qualitative Study of Primary Care Staff". *Journal of General Internal Medicine* 30.12 (2015): 1837-1844.
36. Spitz Aerin., *et al.* "Primary Care Providers' Perspective on Prescribing Opioids to Older Adults with Chronic Non-Cancer Pain: A Qualitative Study". *BMC Geriatrics* 11.1 (2011).
37. Mintzer Ira L., *et al.* "Treating Opioid Addiction with Buprenorphine-Naloxone in Community-Based Primary Care Settings". *The Annals of Family Medicine* 5.2 (2007): 146-150.
38. D'Onofrio Gail., *et al.* "Emergency Department-Initiated Buprenorphine for Opioid Dependence with Continuation in Primary Care: Outcomes During and after Intervention". *Journal of General Internal Medicine* 32.6 (2017): 660-666.
39. Alford Daniel P., *et al.* "Collaborative Care of Opioid-Addicted Patients in Primary Care Using Buprenorphine: Five-Year Experience buprenorphine for Opioid Addiction". *JAMA Internal Medicine* 171.5 (2011): 425-431.

Volume 15 Issue 8 August 2019

©All rights reserved by Manal Abdulaziz Murad., *et al.*