ISSN Print: 2664-7591
ISSN Online: 2664-7605
Impact Factor: RJIF 5.2
IJAN 2023; 5(1): 01-03
www.pharmaceuticaljournal.in
Received: 05-10-2022
Accepted: 04-11-2022

Abdul Kader Mohiuddin
Alumni, Faculty of Pharmacy, Dhaka University, Dhaka, Bangladesh

Corresponding Author:
Abdul Kader Mohiuddin
Alumni, Faculty of Pharmacy, Dhaka University, Dhaka, Bangladesh

Prudent use of NSAIDs in patients with COVID-19, Dengue, and Chikungunya

Abdul Kader Mohiuddin

DOI: https://doi.org/10.33545/26647591.2023.v5.i1a.42

Abstract
NSAIDs are most common pharmacological options for pain management, although their use is questionable in many viral diseases like COVID-19, Dengue, and Chikungunya. Newer studies suggest to limit their use in such cases and also reinforces more careful considerations in patients with liver and kidney injuries or concurrent administration with other drugs/nutraceuticals such as antioxidants or SSRIs.

Keywords: Pain management, cautions with SSRIs, hypertensive patients with viral fever, misuse of NSAIDs, NSAIDs in kidney or liver-compromised patients

Introduction
NSAIDs are considered the mainstay of current therapies for viral arthropathies, albeit they frequently only offer partial relief. Numerous studies have documented widespread abuse of NSAIDs among COVID-19, Dengue, and Chikungunya patients. NSAIDs can be used to treat severe arthralgia, however the WHO advises against doing so in suspected Chikungunya patients until it has been determined that they do not have dengue. Acetaminophen is recommended by consensus guidelines for treating Dengue fever from the WHO and CDC, although NSAIDs are contraindicated due to a possible increase in bleeding risk, which could result in thrombocytopenia as a side effect.

Fatality and Catastrophe Investigation
At least 165,000 fatalities, 650,000 hospitalizations, and 30% of ADR related hospital admissions around the globe are attributable to NSAIDs, mostly as a result of bleeding, heart attacks, strokes and renal impairment [1, 2]. Additionally, overusing this class of medications can result in kidney damage, and kidney patients may experience its side effects at a 3-4 times higher rate [3]. This is particularly crucial because clinical experience and publications have shown that kidney involvement was found up to 75% of the patients with COVID-19 [4]. Similarly, obese, elderly and liver compromised patients with COVID-19 are in increased risk of hospitalization/ICU admission. Also, liver injury and abnormal liver function reported in nearly one-fourth to half of the hospitalized patients or patients recovered from COVID-19. Acetaminophen and antibiotics were the most commonly reported drugs for liver injury among hospitalized patients [5]. Liver function tests should be performed among these type of hospitalized patients before prescribing NSAIDs and Acetaminophen.

Cardiovascular complications
Hypertension or cardiac involvements was the most common pre-existing comorbidities in fetal cases of COVID-19 and Chikungunya patients [6, 7]. NSAIDs have numerous potentially deleterious effects on immune function and they interact with many drugs which are used in patients with cardio-or cerebrovascular disorders: They attenuate the effects of diuretics, beta-blockers, ACE inhibitors and AT-2 blockers, thus leading to uncontrolled hypertension or aggravation of heart failure [8].

Interactions with Commonly Prescribed SSRIs
Sleep disturbance is reported in close to 40% of COVID-19 and some 30% to 60% Chikungunya patients (due to severe arthropathy). The use of benzodiazepines is contraindicated among COVID-19 patients with various antiviral medications, increases the

risk of delirium and respiratory depression. However, physicians should recognize that concurrent use of Selective Serotonin Reuptake Inhibitors (SSRIs) and NSAIDs was related with a 75% increased risk of upper GI bleeding and should advise patients appropriately if they choose to utilize SSRIs for the same [9]. This is particularly concerning because NSAIDs are frequently taken daily or sometimes many times per day, and SSRIs are typically prescribed for daily usage.

Recommendation

Maintaining the body hydration level is more crucial than bringing down the temperature with painkillers, especially in Dengue or COVID-19 patients. In children, using too much Acetaminophen syrup or suppositories might irritate the stomach, preventing proper digestion, leading to vomiting and even necessitating hospitalization. With very few exceptions, the majority of hospitalizations or ICU admissions among those individuals might be avoided by just avoiding dehydration at home with saline and fruit juice or by simply drinking more water.

Some recent studies warrant concurrent administration of antioxidants and omeprazole along with NSAIDs in COVID-19 patients, needs further investigations, of course.

Resistance training with NSAIDs, along with professional guidance are highly recommended for post-COVID and Chikungunya pain-discomfort management. Mindfulness-based therapies for insomnia-management are recommended to both of these type of patients [10].

NSAIDs are contra-indicated in Dengue fever. In addition to recommending daily follow-up, Dengue patients who are being followed as outpatients must be counseled on appropriate home care and on attending to warning signs warranting an earlier return to the clinic for re-evaluation. Along with tepid sponging, Acetaminophen is advised for fever relief.

Finally, it is recommended that pain modulation therapy, especially with NSAIDs, is important for the management of outpatients with early symptoms of COVID-19. Co-administration of NSAIDs with low-dose systemic corticosteroids has been advised to reduce pain and improve quality of life in patients with Chikungunya, only if the benefits outweigh the risks. In both of these cases, other comorbid situations should be carefully considered.

Conclusion

Prevention techniques are most effective for most contagious diseases-theoretically. Along with them, some non-drug treatment options should be exercised among such patients with viral diseases after careful consideration of patients' comorbidities. Modern care giving more emphasis to patient care and counseling over drug use. And caution should be taken before any drug intake as none of them are free of their adverse effects. Proper body workout, patient counseling for motivation, maintaining hydration and nutritious food intake necessary to regain body fitness, to improve immune function and quality of life.

Abbreviations

Angiotensin-converting enzyme (ACE) inhibitors.
Angiotensin II receptor type 2 (AT-2) blockers.
Adverse Drug Reaction (ADR).
Non-steroidal anti-inflammatory drugs (NSAIDs).
US Centers for Disease Control and Prevention (CDC).
World Health Organization (WHO).

Acknowledgement

I'm thankful to Dr. Omar Mourad, Division of Infectious Diseases, McMaster University, Hamilton Health Sciences, Canada for his valuable time to audit my paper and for his thoughtful suggestions. I'm also grateful to seminar library of Faculty of Pharmacy, University of Dhaka and BANSDOC Library, Bangladesh for providing me books, journal and newsletters.

Declaration: The study does not promote use of steroid painkillers in any forms in any of the stated viral conditions.

Financial disclosure or funding: N/A.

Conflict of interest: The author declares that he has no competing interests.

Informed consent: N/A

References

1. Lucas GNC, Leitão ACC, Alencar RL, Xavier RMF, Daher EF, Silva Junior GBD. Pathophysiological aspects of nephropathy caused by non-steroidal anti-inflammatory drugs. J Bras Nefrol. 2019 Jan-Mar;41(1):124-130. Doi: 10.1590/2175-8239-JBN-2018-0107.
2. Davis Abigail, John Robson. The Dangers of Nsaids: Look Both Ways. British Journal of General Practice. 2016;66(645):172-173. https://doi.org/10.3399/bjgp16x684433.
3. Mohiuddin, Abdul Kader. Medication Adherence: Fact or Fictions? Open Journal of Pharmaceutical Science and Research. 2022 Nov;4:6-10. https://doi.org/https://doi.org/10.36811/ojpsr.2022.110017. https://www.raftpubs.com/ojpsr-pharmaceutical-science-and-research/pdf/ojpsr_raft1017.pdf
4. Esposito, Pasquale, *et al*. Changes of Acute Kidney Injury Epidemiology during the COVID-19 Pandemic: A Retrospective Cohort Study. Journal of clinical medicine. 2022 Jun;11(12):33-49. Doi:10.3390/jcm11123349
5. Gabrielli M, Franza L, Esperide A, Gasparrini I, Gasbarrini A, Franceschi F. On behalf of Gemelli against COVID-2019. Liver Injury in Patients Hospitalized for COVID-19: Possible Role of Therapy. Vaccines. 2022 Jun;10:192. https://doi.org/10.3390/vaccines10020192
6. Peng Mei, *et al*. Role of Hypertension on the Severity of COVID-19: A Review. Journal of cardiovascular pharmacology. 2021;78(5):e648-e655. Doi: 10.1097/FJC.0000000000001116
7. Sharp TM, Keating MK, Shieh WJ, Bhatnagar J, Bollweg BC, Levine R, *et al.* Clinical Characteristics, Histopathology, and Tissue Immunolocalization of Chikungunya Virus Antigen in Fatal Cases. Clin Infect Dis. 2021 Jul;73(2):e345-e354. Doi: 10.1093/cid/ciaa837
8. Stöllberger C, Finsterer J. Nonsteroidal anti-inflammatory drugs in patients with cardio-or cerebrovascular disorders. Z Kardiol. 2003 Sep;92(9):721-9. Doi: 10.1007/s00392-003-0964-x.

9. Alam SM, Qasswal M, Ahsan MJ, Walters RW, Chandra S. Selective serotonin reuptake inhibitors increase risk of upper gastrointestinal bleeding when used with NSAIDs: a systemic review and meta-analysis. Sci. Rep. 2022 Aug;12(1):144-52. Doi: 10.1038/s41598-022-18654-2.
10. Mohiuddin AK. Chapter 29. Non-Drug Pain Management. The Role of the Pharmacist in Patient Care: Achieving High Quality, Cost-Effective and Accessible Healthcare through a Team-Based, Patient-Centered Approach, Universal-Publishers; c2020. p. 570-19.
11. https://www.universal-publishers.com/book.php?method=ISBN&book=1627343083