

Assessment of Prescription of Metronidazole Among The Doctors of District Umerkot

Muhammad Imran Rathore*, Dileep Kumar**, Aneel Kapoor***

ABSTRACT

Objective: To assess the indications with which metronidazole is being prescribed by the doctors of Umerkot. To set necessary recommendations regarding prescription of drug and emergence of drug resistance.

Methods: A cross sectional study was conducted during 1st to 30th June 2016, among the doctors of Umerkot in which pre tested questionnaire was distributed to 80 doctors which are practicing in different hospitals of Umerkot. The collected data was analyzed statistically and results were tabulated.

Results: There were 56 medical officers and 24 postgraduates. 53/80 thought that it was anti diarrheal, 50/80 said anti bacterial, 46/80 said anti protozoal, 27/80 said anti helminthic, 12/80 said anti fungal, 6/80 said antiviral, 3/80 said mucosal protective agent. 75/80 said that they would prescribe metronidazole in any type of diarrhea, 56/80 said food poisoning, 29/80 IBS and amoebiasis, 26/80 anaerobic bacterial infection, 24/80 IBD, 15/80 said intra abdominal infection 12/80 said bacterial septicaemia, 7/80 said skin infection, 3/80 said bones and joint infection & CNS infection, 1/80 said trachomoniasis, 1/80 RTI. 43/80 knew the side effect of the drugs (skin allergy, bitter taste, nausea, vomiting, vertigo, constipation) 27/80 didn't. 39/80 knew about the contraindications (hepatitis, pregnancy, unconsciousness, constipation), 41/80. Regarding the substitute of metronidazole 62/80 said other antibiotics (Levofloxacin, Moxifloxacin) 18/80 said antifungal.

Conclusion: This study reflects that there is unnecessary prescription of Metronidazole among the doctors of Umerkot. Most commonly being prescribed for diarrhea, food poisoning, amoebiasis and IBS. It is critical that 27 doctors didn't know the side effect and 41 were not aware of the contraindications.

Keywords: Metronidazole, Antibiotic, Abuse, Diarrhoea,

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INTRODUCTION:

Metronidazole has been used for the treatment of infections for >45 years and is still successfully used for the treatment, of

trichomoniasis, amoebiasis, and giardiasis^{1,2}. The first report on the effect of metronidazole for the management of anaerobic infections was published in 1962 by Shinn³. It was originally indicated for the management of infection caused by *Trichomonas vaginalis* and was then shown to be effective against other protozoal infections, such as amoebiasis and giardiasis¹. Tally and colleagues showed that metronidazole is useful in the treatment of systemic anaerobic infections, including those caused by *Bacteroides fragilis*^{4,5}. Later, metronidazole was introduced for the

* Assistant Professor Anatomy, Muhammad Medical College, Mirpurkhas.
 ** Assistant Professor of E.N.T, PUMHS, Nawabshah.
 *** Assistant Professor of Biochemistry, Muhammad Medical College, Mirpurkhas.

Correspondence to:

Dr. Muhammad Imran Rathore

Assistant Professor Anatomy
 Muhammad Medical College,
 Mirpurkhas.

Email: pilotomnivore@hotmail.com

management of *Clostridium difficile* infection and is still recommended as an alternative to vancomycin for treatment of this infection⁶. Metronidazole was shown to be efficacious against *Entamoeba histolytica*, the cause of amebic dysentery and liver abscess, in 1966⁵. *Giardia lamblia* (also known as *G. duodenalis*) was treated with metronidazole after this luminal parasite was recognized as a cause of malabsorption and epigastric pain in the 1970s^{7,8}. Treatment regimens for the eradication of *Helicobacter pylori* still include metronidazole in combination with other agents⁹. Metronidazole is also indicated for the treatment of bacterial vaginosis caused by *Gardnerella vaginalis*¹⁰. Despite 45 years of extensive use, metronidazole remains the criterion standard for the management and prophylaxis of anaerobic infections¹¹.

METHODS:

A cross sectional study was conducted during 1st to 30th June 2016, among the doctors of Umerkot in which pre tested questionnaire was distributed to 80 doctors which are practicing in different hospitals of Umerkot. The collected data was analyzed statistically and results were tabulated.

RESULTS:

Out of 80 study participants, 56 were medical officers, 24 were postgraduates. Regarding mechanism of action of metronidazole 53/80 said that it is anti diarrheal, 50/80 said anti bacterial, 46/80 said anti protozoal, 27/80 said anti helminthic, 12/80 said anti fungal, 6/80 said antiviral, 3/80 said mucosal protective agent. Regarding the indication of metronidazole 75/80 said that they prescribe in any type of diarrhea, 56/80 said food poisoning, 29/80 said IBS and amoebiasis, 26/80 anaerobic bacterial infection, 24/80 IBD, 15/80 said intra abdominal infection

12/80 said bacterial septicaemia, 7/80 said skin infection, 3/80 said bones and joint infection & CNS infection, 1/80 said trichomoniasis, 1/80 RTI. None said gynaecological infection & endocarditis. Regarding the knowledge of side effect 43/80 know the side effect of the drugs (skin allergy, metallic taste, nausea, vomiting, vertigo, constipation) 27/80 didn't know about the side effects. Regarding the contraindication of drug 39/80 know about (hepatitis, pregnancy, unconsciousness, constipation). 41/80 didn't know about it. Regarding the substitute of metronidazole 62/80 said other antibiotics (Levofloxacin, Moxifloxacin) 18/80 said antifungal.

DISCUSSION:

Despite extensive use worldwide, acquired resistance to metronidazole among anaerobic bacteria is rare¹². The physicians sometimes over treat gastrointestinal symptoms with antibiotics and they thereby promote this vicious cycle of antibiotic misuse¹³. Also, the pharmacy shops often mislead the public¹⁴. Besides the opioids, the other diverse groups of drugs- which include antibiotics, anti-hypertensives, steroids or anticonvulsants can also be overused or abused¹⁵. The treatment for these types of abuse is difficult and it often needs a prolonged psychological support¹⁶. The long term use of drugs like metronidazole or ornidazole can cause toxicities like infertility¹⁷. Although antibacterial agents have no proven usefulness in the management of acute watery diarrhea, many caregivers continue to use them extensively, as was seen among our study participants¹⁸. Most acute cases of gastroenteritis are caused by viruses and only ORT is needed^{19,20}. Even when a bacterial cause is suspected in an outpatient setting, anti microbial therapy is not usually indicated in children because the majority of cases of

acute diarrhea are self-limited and not shortened by antimicrobial agents. The World Health Organization (WHO) has reported that rotavirus is the commonest cause of diarrhea in children, with 95% worldwide being infected irrespective of race or SES within the first 3-5 years of life. Even in hospital-based surveys rotavirus is responsible for 25-65% of severe dehydrating diarrhea²⁰. Indiscriminate use of antibiotics results in unnecessarily increased expense and also development of resistance²¹.

CONCLUSION

This study reflects that there is unnecessary prescription of Metronidazole among the doctors of Umerkot. Most commonly being prescribed for diarrhea, Food poisoning, Amoebiasis and IBS. It is critical that 27 doctors didn't know the side effect and 41 were not aware of the contraindications.

REFERENCES:

1. Lofmar S, Edlun C and Nord CE. Metronidazole is still the Drug of Choice for Treatment of Anaerobic Infection. *Clin Infect Dis*. 2010;50: S16-S23.
2. Bora GN. Metronidazole (MNZ) : A bird's eye view of it's use in dentistry. *Int J Scientific Engin Appl Sci*. 2016;2(6):78-80.
3. Shinn DLS. Metronidazole in acute ulcerative gingivitis. *Lancet*. 1962;279: 1191.
4. Tally FP, Sutter VL, Finegold SM. Metronidazole versus anaerobes: in vitro data and initial clinical observations. *Calif Med*. 1972;117:22-6.
5. Tally FP, Sutter VL, Finegold SM. Treatment of anaerobic infections with metronidazole. *Antimicrob Agents Chemother*. 1975;7:672-5.
6. Lewis BB, Buffie CG, Carter RA, Leiner I, Toussaint NC, Miller LC, et al. Loss of Microbiota-Mediated Colonization Resistance to *Clostridium difficile* Infection With Oral Vancomycin Compared With Metronidazole. *J Infect Dis*. 2015; 212(10): 1656-65.
7. Ravdin JI. Amoebiasis, State-of-the-art clinical article. *Clin Infect Dis*. 1995;20: 1453-1464.
8. Zaat JOM, Mank TG, Assendelft WJJ. A systematic review on the treatment of giardiasis. *Trop Med Int Health*. 1997;2:63-82.
9. Alang N, Kelly CR. Weight Gain After Fecal Microbiota Transplantation. *Open Forum*. 2015;2(1):of v004. doi:10.1093/ofid/ofv004.
10. Machado D, Castro J, Palmeira-de-Oliveira A, Martinez-de-Oliveira J, Cerca N. Bacterial. *Front Microbiol*. 2015; 6: 1528. Published online 2016 Jan 20. doi: 10.3389/fmicb.2015.01528
11. Cantador AA, JF, Freeman WD, Tatum WO. Nonconvulsive Status With Metronidazole. *Neurohospitalist*. 2013; 3(4):185-9.
12. Johnson M. Metronidazole: an overview. Up To Date, 2010. Available from: www.uptodate.com (accessed Apr, 2012.)
13. Raghu MB, Balasubramanian S, Balasubramaniam G, Indumathy, Ramnath.. The drug therapy of acute diarrhea: 1.Children-actual practice and recommendation. *Indian J Pediatr*. 1995;62(4): 433-7.
14. Rodhipak A, Varavithya W, Punyaratabandhu P, Vathanophas, Sangchai. The impact of an educational program on the treatment practices of diarrheal diseases among pharmacists and druggsellers. *Southeast Asian J Trop Med Public Health*. 1993;24(1):32-9.
15. Jaffe JH, Anthony JC. Substance related Disorders. In: Sadock BJ, Sadock VA, editors. *Kaplan & Sadock's Comprehensive Textbook of Psychiatry*. 8th ed.

- Baltimore: Lippincott Williams & Wilkins;2005.
16. Kapoor K, Chandra M, Nag D, Paliwal JK, Gupta RC, Saxena RC. Evaluation of the metronidazole toxicity: a prospective study. *Inj J Clin Pharmacol Res.* 1999;19: 83-8.
 17. McClain RM, Downing JC. The effect of ornidazole on the fertility and the epididymal sperm function in rats. *Toxicol Appl Pharmacol.* 1988;92:488-96.
 18. Uchendu UO, Ikefuna AN, Emodi IJ. Medication use and abuse in childhood diarrhoeal diseases by caregivers reporting to a Nigerian tertiary health institution. *SAJ Child Health.* 2009;3(3):83-9.
 19. Alam S, Bhatnagar S. Current status of anti-diarrheal and anti-secretory drugs in the management of acute childhood diarrhea. *Indian J Pediatr.* 2006;73:693-6.
 20. Cunliffe NA, Kilgore PE, Bresee JS, Steele AD, Luo, Hart CA, et al. Epidemiology of rotavirus diarrhea in Africa: a review to assess the need for rotavirus immunization. *Bull World Health Organ.* 1998;76(5): 525-37.
 21. Bruneton C, Maritoux J, Topuz B. Analysis of information to the attention of prescribers and patients concerning the treatment of diarrhea in children in France. WHO Essential Medicines and Policy Department (EDM) International Conferences on Improving Use of Medicines (ICIUM). Available from; <http://www.icium.org/index.htm>.