Indian Journal of Medical Case Reports ISSN: 2319–3832(Online)
An Open Access, Online International Journal Available at http://www. cibtech.org/jcr.htm
2015 Vol. 4 (3) July-September, pp.16-18/Rao et al.

Case Report

MULTI-ORGAN FAILURE DUE TO IRRATIONAL DRUG USE- A CASE REPORT

***Vasudeva Rao A., Raj Kumar T., Raju Devde and Kameshwari J.S.**
Department of Pharmacology, Adverse Drug Reaction Monitoring Center, Kakatiya Medical College / MGM Hospital, Warangal 506007, Telangana
**Author for Correspondence*

ABSTRACT
There is a concern regarding irrational prescription and use of drugs in the developing world. This is a case where there was a need of pharmacovigilance as irrational prescription and use of drugs led to organ failure and patient was subjected to maintenance haemodialysis by jugular catheterization.

Keywords: *Irrational Drug Use, Pharmacovigilance, Organ Failure, Maintenance Haemodialysis*

INTRODUCTION
In both the developing and developed world medically appropriate ineffective and economically inefficient use of drugs commonly occurs in health care facilities (Godfrey *et al.*, 2014). The costs of such irrational drug use are enormous in terms of both scarce resources and adverse clinical consequences of therapies that may have real risks but no benefits. Various forms of inappropriate prescribing often remain unnoticed by those who are involved in health sector decision making. The problem will come to attention when there is an acute shortage of pharmaceutical budget that requires action for cost efficiency.

CASES
A 50 year old male patient presented to a private physician with complaints of intermittent pain in the right loin since one month, burning micturition since 15 days, fever associated with headache since 10 days. He was apparently asymptomatic one month back. He gradually developed pain in the right loin which was mild increasing and became very severe. Fever was associated with chills, rigors and was intermittent and was high grade in severity. He neither had a history of co-morbidity nor hospitalization (hypertension, diabetes, asthma, epilepsy, coronary heart disease). Family history was insignificant. He is not an alcoholic or smoker. His diet included cabbage, spinach and tomatoes at least twice a week for the past 15 years. On examination, a 60 kg weighing male patient, with height 158 cm had no pallor, cyanosis, icterus, clubbing, oedema and lymphadenopathy with pulse rate 80 per minute regular normal in rhythm and character. Blood pressure (BP) 110/70 mm of Hg and cardiovascular, respiratory, gastro intestinal and central nervous system were normal. His routine lab investigations were normal i.e., haemoglobin 12 g%, random blood sugar was 100 mg/dl, blood urea 30 mg/dl, serum creatinine 0.9 mg/dl, complete urine examination pus cells 6-8 HPF, RBC 1-2 HPF, Bleeding time 2 min 2 sec, clotting time 4 min 12 sec, chest X-ray posterior anterior view normal, electrocardiogarm showed normal sinus rhythm. His x ray kidney ureter bladder (KUB) region showed a 1.2 cm calculus in right renal area. Ultrasound abdomen showed right renal calculi of 1.2 cm in size in right ureter. Intravenous pyelography showed renal calculi of 1.2 cm in size in right ureter. He was given two doses of injection cefoperazone 1g + sulbactum 0.5g, injection paracetamol 1g, along with injection ranitidine 50 mg intravenously and fever subsided.

Surgery was done by ureteroscopic lithotripsy (URSL) technique under general anaesthesia. Patient was on nil per oral for 36 hours and was treated with injection cefperazone 1g + sulbactum 0.5g, injection amikacin 500mg, injection metronidazole 500mg/100ml, injection ondansetron 4mg, injection ranitidine 50mg intravenously twice a day for two days after which he was given sips of oral fluids followed by soft diet and discharged the next day with tablet ciprofloxacin 500mg, tablet hyoscine butylbromide 10mg, tablet ranitidine 150mg twice a day with tablet zincovit (vitamin A 5000 IU, vitamin D3 400 IU, vitamin E 15 mg, vitamin B12 7.5 mcg, vitamin B2 10 mg, vitamin B6 2 mg, vitamin C 75 mg, vitamin B5 10

mg, vitamin B1 10 mg, niacinamide 50 mg, magnesium 18 mg, copper 0.5 mg, manganese 0.9 mg, zinc 22 mg, selenium 50 mcg, folic acid 1 mg, biotin 150 mcg, iodine 150 mcg, chromium 25 mcg, molybdenum 25 mcg, carbohydrate 0.2 g) once daily.

24 hours after discharge patient presented to the emergency with complaints of 10 episodes of loose stools, five episodes of vomiting with cool peripheries. His pulse was feeble with BP 80 systolic. He was corrected with two litres of normal saline 0.9% W/V, Ringer lactate with foot end elevation and treated with two doses of injection cefoperazone 1g + sulbactum 0.5g, injection piperacillin 4 g, tazobactam 0.5 g, injection amikacin 500mg, injection metronidazole 500mg/100ml, injection ondansetron 4mg along with injection ranitidine 50 mg intravenously.

He continued to have 10 episodes of loose stools, six episodes of vomiting and was given tablet nimsulide 100mg and two capsules of loperamide 2mg. His BP was 60 mm of Hg systolic with feeble pulse and urine output was 75 ml per 24 hours. He was then given injection dexamethasone 8mg, injection piperacillin 4 g, tazobactam 0.5, injection metronidazole 500mg/100ml, injection ondansetron 4mg, injection ranitidine 50 mg, injection levofloxacin 500mg/100ml and injection furosemide 20mg/2ml intravenously. Injection dopamine drip was stared at the rate of 5mcg/kg/min along with IV fluids (normal saline, Ringer lactate and isolyte M). Injection meropenem 1g IV two doses were given. His urine output was 225 ml /24 hrs. He has distended abdomen, severe shortness of breath associated with pulmonary oedema, oedematous limbs with raised body temperature of 101° F and increased body weight. His lab investigations were blood urea 140mg/dl. Serum creatinine 6mg/dl, serum sodium 130 mmol/l, serum potassium 2.8 mmol/l, complete urine examination showed Red blood cells 8-10 per high power field and fair amount of albumin was present. His liver enzymes were grossly elevated with yellowish discoloration of bulbar conjunctiva, x ray of chest posterio-anterior view revealed massive pulmonary oedema. Patient was referred to tertiary care where emergency haemodialysis through right jugular vein approach was established.

DISCUSSION

Appropriate use of drugs is also one of the essential elements in achieving quality of health and medical care for patients and community. Irrational use of drugs can be seen as a reduction in quality of drug therapy leading to increased morbidity and mortality, increased risk of unwanted effects such as adverse dug effects and emergence of drug resistance, reduced availability of essential drugs. This patient had high levels of blood urea, serum creatinine, RBC in urine; sever shortness of breath associated with massive pulmonary oedema and oedema of extremities leading to acute renal failure due to irrational drug use.

There is a documented incidence of vomiting and diarrhoea (Eugene *et al.*,; Merrem Product Monograph, 2007; Tazocin Product Monograph, 2008; Asha *et al.*, 2006; Hookman and Barkin, 2009) with the initially prescribed antibiotics and repletion followed by addition of pencillins and betalactams (Eugene *et al.*,; Merrem Product Monograph, 2007; Tazocin Product Monograph, 2008; Asha *et al.*, 2006; Hookman and Barkin, 2009) has worsened the condition leading to multiple organ failure. Cumulation of these drugs led to toxicity and subjected the patient to emergency haemodialysis (Swarnalatha *et al.*, 2011) through right jugular vein approach and patient was stabilized after six sittings (Swarnalatha *et al.*, 2011). This can be categorized under category F i.e., an error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization of medication error defined by the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) (NCC MERP).

The clinicians should keep in mind about safety, affordability, need, efficacy (Sherma and Sherma) to prescribe right drug to the right patient by right route in right dose at right time (Goodman and Gillman). To improve the quality and efficacy of drug therapy it is necessary to have through understanding of existing patterns of therapy and factors that underlie these patterns. Finally patients should receive medications appropriate to their clinical needs in right doses that meet their own requirements and at a lower cost to them.

ACKNOWLEDGEMENT
Our sincere thanks to Pharmacovigilance Programme of India (PvPI), National Coordinating Centre (NCC), Indian Pharmacopoeia Commission, Ghaziabad, Uttar Pradesh who has extended us every support in bringing this irrational drug use projected.

REFERENCES

Asha NJ, Tompkins D and Wilcox MH (2006). Comparative analysis of prevalence, risk factors, and molecular epidemiology of antibiotic-associated diarrhea due to clostridium difficile, clostridium perfringens, and staphylococcus aureus. *Journal of Clinical Microbiology* **44**(8) 2785-2791.

Eugene YH Yeung, Jason G Gore and Edward V Auersperg (No Date). A Retrospective Analysis of the Incidence of Clostridium Difficile Associated Diarrhea with Meropenem and Piperacillin-tazobactam. *International Journal of Collaborative Research on Internal Medicine & Public Health.*

Godfrey S Bbosa, Geoff Wong, David B Kyegombe and Jasper Ogwal-Okeng (2014). Effects of intervention measures on irrational antibiotics/antibacterial drug use in developing countries: A systematic review. *Health* **6**(2) 171-187, Available: http://dx.doi.org/10.4236/health.2014.62027.

Goodman and Gillman (No Date). Pharmacological basis of therapeutics pg no 81. *Drug Toxicity and Poisoning*, 12th edition.

Hookman P and Barkin JS (2009). Clostridium difficile associated infection, diarrhoea and colitis. *World Journal of Gastroenterology* **15**(13) 1554-1580.

Merrem Product Monograph (2007). *Compendium of Pharmaceuticals and Specialties* (Mississauga (ON): AstraZeneca Inc).

NCC MERP (No Date). NCC MERP Taxonomy of Medication Errors. Available: http://www.nccmerp.org/sites/default/files/taxonomy2001-07-31.pdf, Accessed on August 2015.

Sherma HL and Sherma KK (No Date). *Principles of Pharmacology*, 2nd edition 106.

Swarnalatha G, Ram R, Prasad N and Dakshinamurty KV (2011). End-stage renal disease patients on hemodialysis: a study from a tertiary care center in a developing country, *Hemodialysis International* **15**(3) 312-9, doi: 10.1111/j.1542-4758.2011.00546.x, Epub 2011 Apr 24.

Tazocin Product Monograph (2008). *Compendium of Pharmaceuticals and Specialties* (Markham (ON): Wyeth Canada).