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PATTERN OF USE OF ANTIBIOTICS, ANALGESIC AND GASTROPROTECTIVE AGENTS ON SURGICAL INDOOR PATIENTS OF A TERTIARY CARE TEACHING HOSPITAL IN EASTERN INDIA

General Surgery

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ABSTRACT

Background: antibiotics and analgesic are frequently use drugs are commonly prescribed on patients of surgical indoor. Its common practice to use gastroprotective agents on indoor patients to prevent stress ulcer, also used along with non-steroidal anti-inflammatory agents (NSAIDS) to prevent drug induced peptic ulcer.

Aim - to evaluate the pattern of use of antibiotics, analgesic and gastro protective agents use on surgical indoor patients of a tertiary care teaching hospital in Eastern India.

Design: observational, cross-sectional, unicentric, drug utilization study

Results: A total of 302 prescriptions were studied; 291 patients received atleast one antibiotic.Ceftraixone is frequently used antibiotic. Diclofenac is frequently used analgesic whereas pantoprazole is used frequently as gastro protective agent.

Conclusion: Beta-Lactum antibiotics were most commonly prescribed and poly-antibiotics prescriptions were the common pattern.

KEYWORDS

Drug Utilization Study, antibiotics, NSAIDS, antibiotics

INTRODUCTION

The World Health Organization (WHO) defined drug utilization as the marketing, distribution, prescription and use of drugs in a society, considering its consequences, either medical, social, and economic.[1] Drug utilization study basically focus on the prescribing, dispensing, administering, and taking of medication, and its associated events, covering the medical and non-medical determinants of drug utilization, the effects of drug utilization, as well as studies of how drug utilization relates to the effects of drug use, beneficial or adverse.[2]

Drug utilization studies are continuing programmes that review, analyze and interpret the pattern of drug use against pre-determined standards.[3]

Antibiotics are prescribed in surgical indoor to prevent infection. Judicious and proper selection and adequate dose of antibiotics only prevent antibiotic resistance, thus decrease the social burden.[4]

Analgesic both opioids and non-steroidal anti-inflammatory drugs (NSAIDs) are also commonly used on surgical indoor patients to dampen the pain response. Inadequate pain control may increase the morbidity and length of hospital stay. It can also lead to complications like deep vein thrombosis (DVT), delayed wound healing.[5] Its common practice to use gastroprotective agents along with NSAIDS to prevent peptic ulcer.

On this background, the study was conducted to evaluate the pattern of use of antibiotics, analgesic and gastroprotective agents on surgical indoor patients.

Aim: to evaluate the pattern of use of antibiotics, analgesic and gastro protective agents use on surgical indoor patients of a tertiary care teaching hospital in Eastern India.

METHODOLOGY

After getting ethical approval, this cross sectional observational study was conducted in the surgical indoor of a tertiary teaching hospital in Eastern India. The patients who had willingly participated were enrolled in this study. Prescriptions of all admitted indoor patients were included into the study. Prescriptions of pregnant, lactating, unable to comply due to mental retardation, unconsciousness or drug addiction were excluded from the study. The duration of study was 4 months (March 2018 to June 2018) and total 302 prescriptions were collected and analysed thoroughly. No follow up of prescription was done.

RESULTS

The demographic parameters were presented in table 1.

PATIENT CHARACTERISTICS	NUMBER OF PRESCRIPTION	PERCENTAGE (%)
Age in years		
Below 18 years	47	15.56
18-30 years	43	14.23
31-40 years	49	16.22
41 years -50 years	70	23.17
51-65 years	56	18.54
>65 years	37	12.25
Gender		
Male	197	65.23
Female	105	34.77
Diagnosis		
Cholelithisis	45	14.9
Road traffic accident (RTA)	33	10.92
Abscess	31	10.26
Cellulitis	29	9.6
Appendicitis	24	7.94
Burn	23	7.61
Cut injuries	13	4.3
Phimosis and paraphimosis	13	4.3
Renal stone	12	3.97
Abdominal lump	12	3.97
Perforation	11	3.64
Pancreatitis	10	3.31
Hydrocele	1 0	3.31
Haematuria	10	3.31
Urinary retention	9	2.98
Intestinal obstruction	9	2.98
Liver abscess	8	2.64
Prescribing Indicator: Average number of drugs / prescription = 3.3		

ANTIBIOTICS

Distribution of antibiotics presents in table 2

	Prescription contained at least one antibiotic	Percentage
Yes	291	96.35
No	9	3.65

Group wise distribution of antibiotics are tabulated group wise in table 3

Groups	Name of Antibiotics	Number of prescriptions	Percentage (n=302)
Beta- lactum	Ceftriaxone	139	46.02
	Meropenem	39	12.91
	Piperacilline + Tazobactam	33	10.92
	Amoxicillin + Clavulanic Acid	41	13.57
Fluoroquinolones	Ciprofloxacin	7	2.31
	Levofloxacin	7	2.31
Others	Linezolid	25	8.27
	Amikacin	9	2.98
	Gentamicin	9	2.98
	Metronidazole	119	39.40
Combination of antibiotics			
Ceftriaxone + metronidazole		79	26.15
Amoxy –clav + metronidazole		24	7.94
Piperacilline + Tazobactam + metronidazole		16	5.29
Ceftraixone + amikacin		9	2.98
Ceftraixone + gentamicin		9	2.98

ANALGESIC

Distribution of analgesic presents in table 4

	Prescription contained at least one analgesic	Percentage
Yes	297	98.34
No	5	1.66

Group wise distribution of analgesic are tabulated group wise in table 5

Groups	Name of Antibiotics	Number of prescriptions	Percentage
NSAIDs	Diclofenac	132	43.7
	Paracetamol infusion	79	26.15
Opioids	Tramadol	48	15.89
Others	Drotaverine	38	12.58
Diclofenac inj and Paracetamol infusion		21	6.95
Tramadol inj and Paracetamol infusion		11	3.64
Tramadol inj and Drotaverine inj		9	2.98

GSTROPROTECTIVE AGENTS

Distribution of analgesic presents in table 6

	Prescription contained at least one gastroprotective agent	Percentage
Yes	297	98.34
No	3	1.66

Distribution of gastroprotective agent are tabulated group wise in table7

Groups	Name of gastroprotective agent	Number of prescriptions	Percentage
Proton pump inhibitors (PPI)	Pantoprazole	221	73.17
H2 blockers	Ranitidine	76	26.83
Others	Nil	0	0
Combinations	Nil	0	0

DISCUSSION

This cross sectional observational study was conducted in the surgical indoor of a tertiary teaching hospital in Eastern India. The patients who had willingly participated were enrolled in this study. The duration of study was 4 months (March 2018 to June 2018) and total 302 prescriptions were collected and analysed thoroughly. No follow up of prescription was done.

Antibiotics are commonly prescribed on surgical indoor patients to prevent the ongoing infection or as prophylactic therapy. It is always recommended to use of antibiotics as definite therapy. But during admission we have only option of empirical use of antibiotics.it is always better if we send the sample to microbiology for culture and sensitivity test and then start empirical therapy. Antibiotic policy can inform the ideal antibiotics for empirical therapy. Judicious, selective and proper use of antibiotics only prevent the ongoing antibiotic resistance burden in our society.[6]

In our study, it was observed that 291 prescription contained at least one antibiotic (96.35%). Ceftriaxone was the choice of single use of antibiotic (46.02%) followed by amoxy-clav (13.57%), meropenem (12.91%) Pipercilline - tazobactum (10.92%). It can be stated that beta-lactum antibiotics were used frequently as single antibiotic. Apart from betalactum, metronidazole (39.4%) and linezolid (8.27%) were prescribed frequently. But it was seen that metronidazole was prescribed along with other antibiotics only. Ceftraixone and metronidazole co-prescription was commonly used (26.15%).

This result correlate with previous study. In a study it was seen that ceftriaxone was commonly used followed by Penicillins.[6]

Analgesic agents are also used frequently on surgical indoor patients to prevent pain. NSAIDs are commonly prescribed.

It was seen that near about all the prescriptions contained at least one analgesic (98.34%). Diclofenac was used frequently 43.7%) followed by paracetamol infusion (26.15%), tramadol (15.89%) and drotavrine (12.58%). Diclofenac and paracetamol co- prescription was commonly used (6.95%).

This result also correlated with previous study. In a study it was seen that diclofenac, paracetamol , and tramadol are used frequently.[5]

NSAIDs are an important predisposing factor for peptic ulcer disease in our community. NSAIDs inhibits the synthesis of prostaglandin that protect the gastric mucosa from endogenous hydrochloric acid. Prostaglandin analogue misoprostol is used in NSAIDs induced peptic ulcer but due to side effects proton pump inhibitors (PPI) are commonly prescribed followed by H2 blockers.[3]

In this study near all prescriptions contained one gastroprotective agent (98.34%). Pantoprazole is commonly used agent (73.17%) followed by ranitidine (26.83%).No other gastroprotective agent was used.

This result also correlated with previous study. In a study it was seen that panpoprazole is commonly used gastoprotective agent.[7]

All drugs were prescribed in generic name and with suitable dose and duration. All drugs were supplied by the hospital. Patients didn't purchase any medication.

CONCLUSION

To conclude it can be said that in surgical indoor, antibiotics and analgesics were frequently prescribed. Gastrprotective agents were used to prevent drug induced peptic ulcer. Ceftriaxone was prescribed frequently followed by penicillins. Diclofenac was used frequently as analgesic and pantoprazole was prescribed as gastroprotective agent. All medications were prescribed as generic name. All medications were freely provided by the hospital.

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