

A Study on Role of Antimicrobials in General Surgery

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Abstract:

Background: A study on prophylactic use of antibiotics to prevent infection and to determine the indication extent and appropriateness of use of prophylactic antibiotics

Methods:

A four point prevalence study was conducted in which the patients were screened for the use of prophylactic antibiotics.

Results:

Of 500 antibiotics prescriptions 150 antibiotics were given as prophylaxis and adherence to protocol was seen in 140 cases

Conclusion:

Antibiotics prophylaxis given outside the operating room accounts for a considerable part of in - hospital use of antibiotics. All the prescriptions given were strictly adherent to the protocol.

Keywords: antibiotics, prophylaxis, point prevalence study

Introduction

Antibiotic prophylaxis accounts for a significant amount of antibiotics used. Pre-operative antibiotics prevents upto 80% of surgical site infections. Increase in the need of invasive therapies has increased the indication for antibiotic prophylaxis for prevention of infection. Lack of clinical trials has led to different interpretations on dosage and duration of antibiotic prophylaxis leading to its suboptimal use. Studies have also shown that there is a lack of knowledge regarding the extent, indication and evidence of antibiotic prophylaxis. In this study a point prevalence study was carried out to establish the role of prophylactic antibiotics. And the goal was to investigate the extent of prophylaxis, indications for prophylaxis, and adherence to protocol

Material And Methods

This study was carried out on May 2018 in Sri Lakshmi Narayana institute of medical sciences, a tertiary care hospital at Puducherry. The surgery department performs complex

surgeries and an antibiotic stewardship team is present to monitor the use of antibiotics and the adherence to the protocol this study was done to improve the quality and the patients data was entered anonymously. So, the medical ethics committee approval was not required.

Results

Out of 500 antibiotics prescriptions 150 antimicrobial prescriptions were given as prophylaxis. In about 140 antibiotics prescriptions there was strict adherence to protocol. In 10 cases, antibiotics were prescribed without any adherence to protocol.

Discussion

This study was done to find out the extent, indication and appropriateness of antibiotic prophylaxis that was given outside the operating room in a tertiary care hospital. About one-third of all the antibiotic used was for prophylaxis. There was strict adherence to protocol for all the antibiotics used. The high adherence rate to protocol for the use of antibiotics may be because of the fact that prophylaxis is more easily protocolized than therapy.

The strength of this study is that it was done at four different time points, and the prescription was manually identified and validated by a computerized medication order system. Limitations of this study is that some indications are missed and documentation of indication is also not done at many instances. Additional disadvantage is that this study did not include outpatients in whom prophylactic antibiotics are initiated.

Data collection:

Point prevalence study:

Four-point prevalence study was performed on four consecutive Wednesdays, to determine the role of prophylactic antibiotics in hospitalized patients. All the antibiotics prescriptions and files of the in-patients were screened manually. On Thursday, a list was obtained from the computerized medication order entry system to confirm the obtained data. Antibiotics prescribed in the out-patient department, intensive care unit and in the operating room were not included.

Classification of Prophylaxis:

Antibiotics are classified into therapeutic and prophylactic antibiotics. Antibiotics which were given preceding a surgical intervention was taken into study.

Protocol presence and adherence:

Every prophylactic antibiotic prescribed were analyzed to check for adherence to protocol. Documentation was done whenever there was a reason for discontinuing the prophylaxis.

Data analysis:

Days on therapy are preferably used to determine the extent of antibiotics used. Extent of antibiotics used was recorded. Adherence to protocol was also recorded.

Conclusion

About one-third of antibiotics used outside the operating room were prophylactic antibiotics and it has reduced the surgical site infection significantly.

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Conflict of interest: Nil

I. Tables :**TABLE 1:****ANTIBIOTIC PRESCRIPTIONS PER POINT PREVALANCE SURVEY**

POINT PREVALENCE STUDY	TOTAL	NUMBER OF PRESCRIPTIONS
PROPHYLACTIC PRESCRIPTIONS		

PPS 1	127	38
PPS 2	110	42
PPS 3	132	37
PPS 4	131	39
TOTAL	500	150

TABLE 2:**ADHERENCE TO PROPHYLACTIC ANTIBIOTIC PRESCRIPTIONS**

PROPHYLACTIC PRESCRIPTIONS	ADHERENCE TO PROTOCOL	NON-ADHERENCE TO PROTOCOL
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150	140	10
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TABLE 3:**INDICATIONS FOR PROPHYLAXIS**

INDICATIONS	PROTOCOL
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ERCP	yes
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Spontaneous bacterial peritonitis	yes
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Stoma reversal	no
Chronic anastamotic leakage	no
After amputation for osteomyelitis	yes
Percutaneous kidney stone removal	yes
Laproscopy/Open nephrectomy	yes

TABLE 4:

LIST OF PROPHYLACTIC ANTIMICROBIALS PRESCRIBED

ANTIBIOTICS	NUMBER OF PRESCRIPTIONS
Trimethoprim/sulfamethoxazole	9
First generation cephalosporins	28
Fluroquinolones	7
Small spectrum penicillins	10
Amoxicillin/clauvulinic acid	15
Second generation cephalosporins	4
Broad spectrum penicillin	2
Macrolides	5
Aminoglycosides	15
Clindamycin	3
Metronidazole	20
Nitrofurantoin	9
Third generation cephalosporin	13

References

- [1].Dale W.BratzlerD.O., M.P.H.PeterM.HouckM.D.Surgical Infection Prevention Guideline Writers Workgroup.
- [2].Steinberg, James P. MD*; Braun, Barbara I. PhD†; Hellinger, Walter C. MD‡; Kusek, Linda RN, MPH†; Bozikis, Michele R. MPH†; Bush, Andrew J. PhD§; Dellinger, E Patchen MD¶; Burke, John P. MD||; Simmons, Bryan MD; Kritchevsky, Stephen B. PhD : A trial to reduce Antimicrobial Prophylaxis Errors (TRAPE) Study Group.

- [3].Single versus multiple dose antimicrobial prophylaxis for major surgery - a systematic review : Malcolm McDonald, Elizabeth Grabsch, Caroline Marshall, Andrew Forbes, First published: 21 January 2008.
- [4].Clinical trials of antimicrobials in surgery,James K. Watts M.B., B.S., F.R.A.C.S.,Peter J. McDonald M.B., B.S., F.R.A.C.P., F.R.C.P.A. & Pamela J. Woods B.Sc., Dip. Comp. Sc., World Journal of Surgery volume.