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Analysis of utilization pattern of antimicrobial agents: Amas in burn wards along with evaluation of supply chain management in a tertiary care teaching hospital

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***Abstract*---**Antimicrobial Agents are commonest used medicaments in all type of health faculty and specialty. It will not be trust worthy if one will say that he or she has not used Antibiotics in his life time or cannot claim that will not use antibiotics in future. To find out rationality of Anti-microbial use in different IPD BURN WARDS of a tertiary care. All prescriptions single or combination of AMAs is included. No age, sex, race, residence, addictions and habituations, socio-economic state, co-morbid condition, height, weight not taken into account, except weight, age and co-morbid conditions such as liver and renal failure taken to determine type and dose of AMAs. Topical antibiotics, ointments, combination of antibiotics with steroids for local applications, ATT, HAART, Antineoplastic drugs, Antifungal antibiotics are not taken into study. The antimicrobial stewardship program is a must for every hospital and it should seek to achieve optimal clinical outcomes related to antimicrobial use, minimize toxicity and other adverse events, reduce the costs of health care for infections, and limit the selection for antimicrobial resistant strains.

***Keywords*---**antimicrobial, AMA, infection, health care.

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Introduction

AMAs – Antimicrobial Agents are commonest used medicaments in all type of health faculty and specialty. It will not be trust worthy if one will say that he or she has not used Antibiotics in his life time or cannot claim that will not use antibiotics in future. (1,2) Also by doctors, many times used empirically in severe shock and sepsis, for not to delaying treatment, to save life, or to limit infection or its complication rather than guided by C/S or when waiting for the report. (3,4). Some AMAs arrests growth of microorganisms, without killing them—bacteriostatic and some kill the bacteria efficiently, are bactericidal. As everybody is aware of fact that united, we stand and divided we fall, means one can break single stick not 3 to 4 sticks conjointly, thus in case of suspected resistance or severe infection COMBINATION OF AMAs used. (5,6,7,8). Having in mind the current progress of resistance spreading and resilience of larger and larger number of bacteria to traditional antibiotics as well as a way of transmitting the gene of resistance, above all via plasmids, one can conclude that the ability of obtaining bacterium resistance to antibiotics represents a very dynamic and unpredictable phenomenon (9,10)

Aims and Objectives

To find out rationality of Anti-microbial use in different IPD BURN WARDS of a tertiary care teaching hospital of eastern ODISHA- SCB.MC & HOSPITAL, CUTTACK, ODISHA

- To find out the antibiotics commonly prescribed I various conditions.
- To determine average number of AMA use for patients.
- To find out judiciousness of combinations of AMAs.
- To find out judiciousness of AMAs use by determining antibiotics prescribed irrationally and whether they prescribed in accordance to standard treatment guide line.
- To compare antimicrobial prescriptions, to determine multiple antibiotic prescriptions and disease conditions in which they are prescribed.
- To collect C/S report and see sensitivity and resistant pattern.
- To locate AMAs change as per report,
- To find out whether laboratory investigation were done before or after prescription of AMAs.
- To find out supply chain management.
- To find out Govt. supply or private purchase
- To find out prescriptions in brand and generic name.
- To find out ADRs in AMAs use.
- To determine whether prescription was for treatment or for prophylaxis.

Material and Method

Methodology

Review of patient's folders, Asses drug availability from stores and pharmacy records, informal interview with prescribers, scrutiny of laboratory records and observations.

Study Design

Observational and Retrospective survey of AMAs usage.

Place of Study

BURN WARDS of SCBMC & HOSPITAL, Cuttack. It is a 3-tier Medical College and Hospital, in eastern Odisha, providing wide variety of Diagnostics and Specialist OPD and IPD Services as well as Teaching faculty. More than half of Odisha state along with West-Bengal and Bihar, Jharkhand population depend on it.

Study Period

Sept.—2013--- Dec. 2015

Sampling

Data are collected from admitted patient's case sheets from ICUs, surgery, orthopedics and burn indoor wards. Data's are collected by a self-prepared preformed proforma, which is prepared as per study design and includes Age, Sex, Disease, Unit, Ward, AMA or AMAs prescribed, Average no of AMAs, Dose, Frequency, Route of administration, along with Govt. supply or private purchase and supply chain

PROFORMA

Patients Name, age, sex, address	
Regd. No. Ward, unit' bed. No. unit head	
Disease Diagnosis	
AMA used Route, dose, Frequency, Duration	
Ward supply Yes or, no	
Market purchase Yes, or No	
Availability in ward Distribution point	
Availability in central store Ware house	

Availability in SDMU	
Changed AMA After C/S	

Inclusive Criteria

All Adult patients admitted to Burn-wards are included. All prescriptions single or combination of AMAs is included. No age, sex, race, residence, addictions and habituations, socio-economic state, co-morbid condition, height, weight not taken into account, except weight, age and co-morbid conditions such as liver and renal failure taken to determine type and dose of AMAs.

Exclusion Criteria

Topical antibiotics, ointments, combination of antibiotics with steroids for local applications, ATT, HAART, Antineoplastic drugs, Antifungal antibiotics are not taken into study.

Data Collection

By a special self-prepared PROFORMA given above and IPC ADR form. (Indian pharmacopeia commission)

Datas Belongs To

- Patients Demography, addictions, habits
- Patients ward; unit etc.
- Diagnosis and condition of patient.
- Whether Microbiologic investigations, were done and confirmed prior to prescription.
- Whether prescriptions were for treatment or preoperative treatment or for prophylaxis.
- Single or multiple AMAs use.
- Logic behind AMAs prescription and combination.
- AMAs change after C/S.
- Patient's compliance and result of treatment.
- ADRs if any.
- Death if any.

Experimental works
Burn ward

Demographic data:

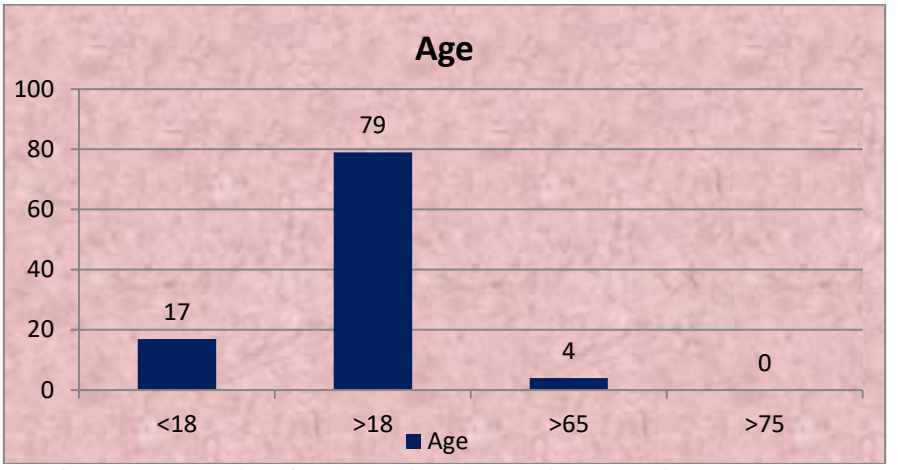

Chart 1. Showing Age Distribution Of Patient Of My Study Group In Burn Ward

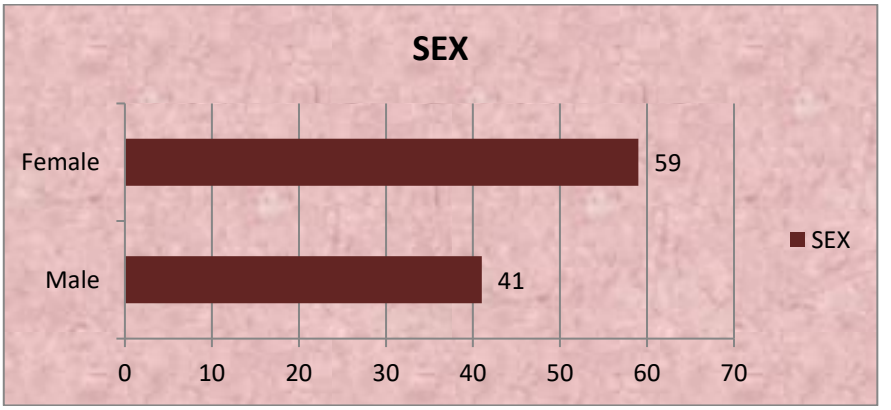

Chart 2. Sex Distribution In Burn Ward

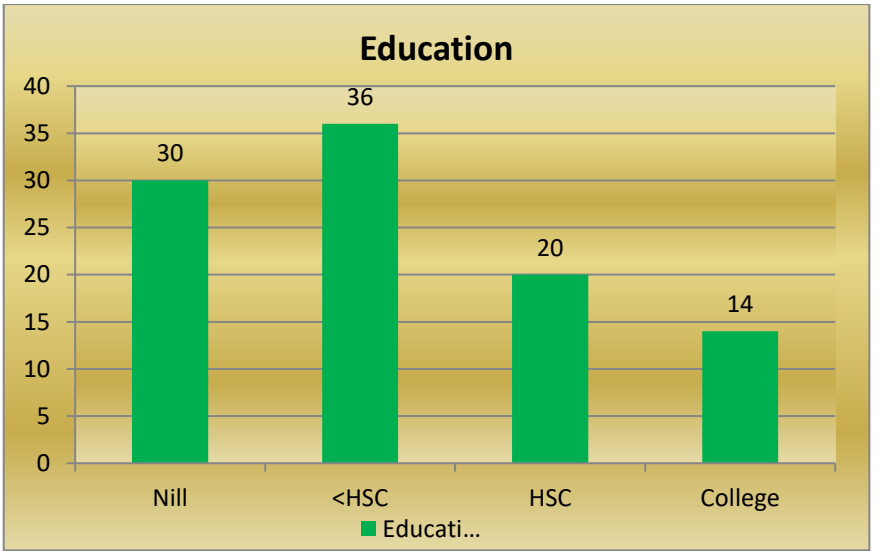

Chart 3. Education Synario in Burn Ward

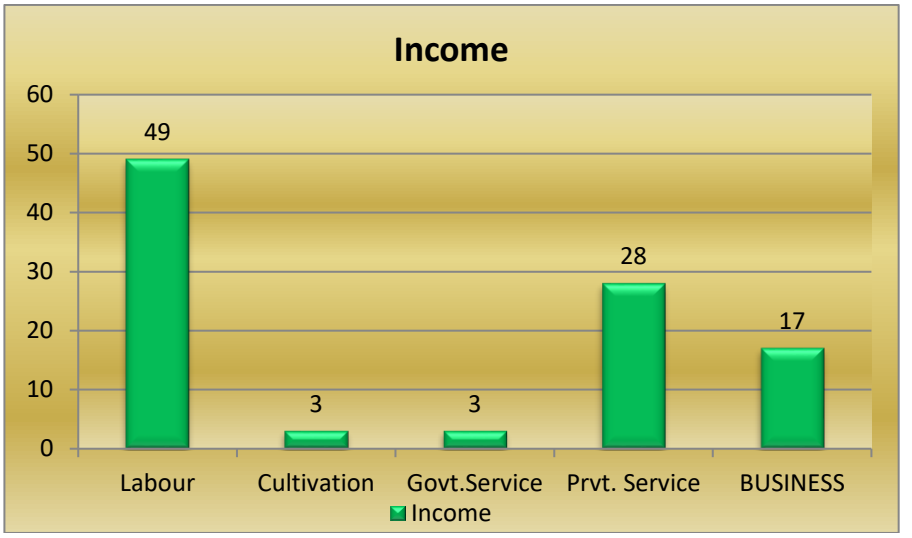

Chart 4. Income Status Of Burn Patients

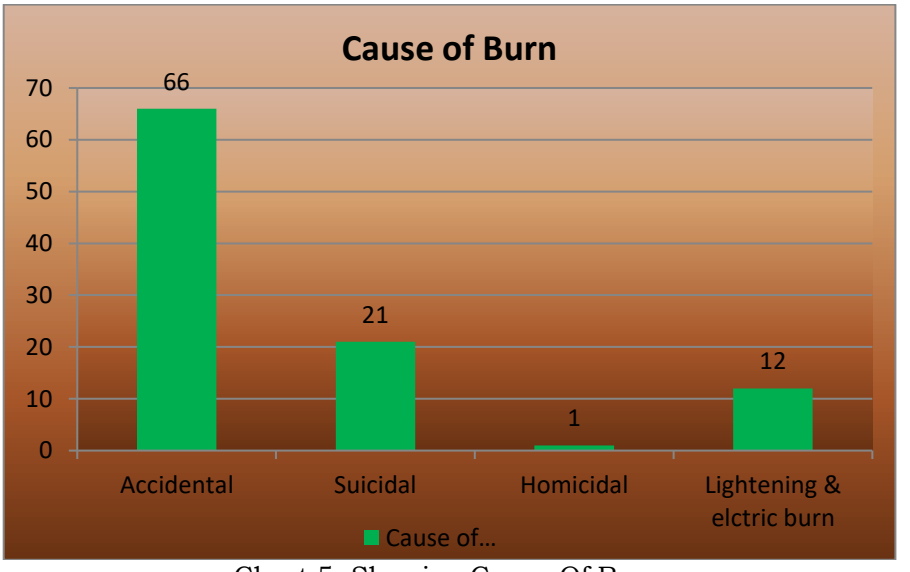

Chart 5. Showing Cause Of Burn

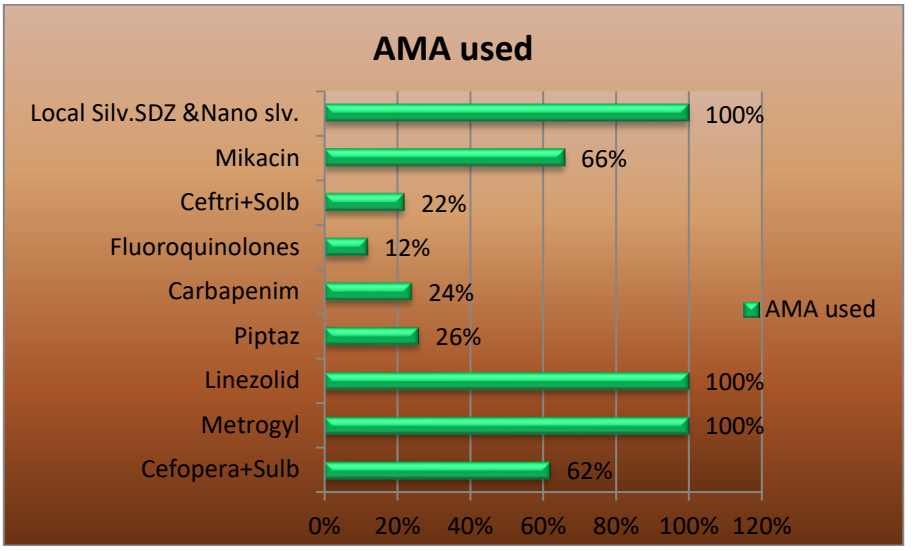

Chart 6. AMAs Used In Burn Patients

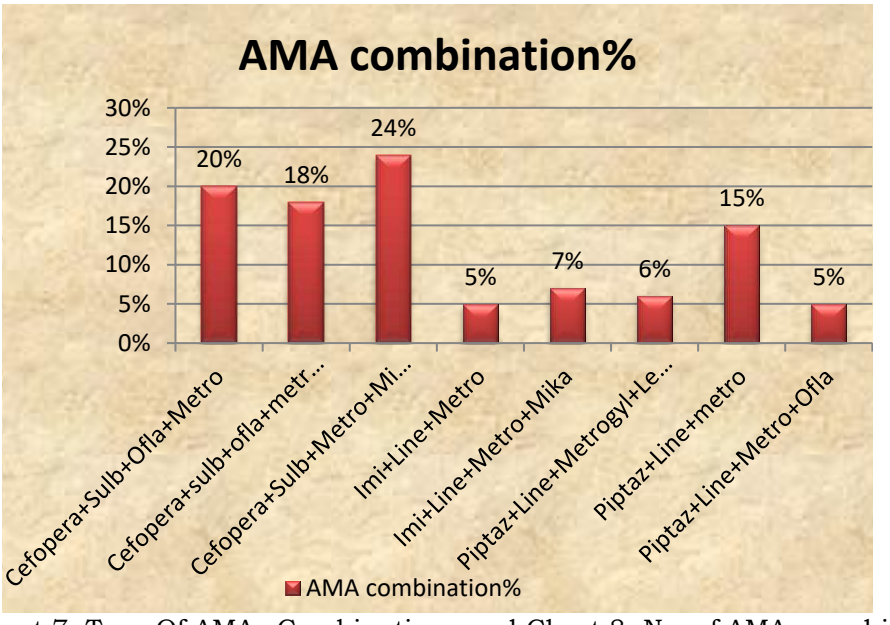

Chart 7. Type Of AMAs Combinations and Chart 8. No. of AMAs used in combination

Results and Discussion

Study Data

Total duration of this study is 3years and total patients covered as follows- Treatment of infections at Burn ward---100 respectively Different types of cases handled in the study, only very precise data is given to cut short the voluminous expansion Out of 100 patients included in this study—60%--Male and 40%

Female .Age—Maximum patients within > 18 yrs. and < 65 yrs.—80%-85% Education-- <HSC and HSC caters maximum patients, maximum number—Cultivators and laborers.

Conclusion

To prevent antimicrobial resistance, rationale use of antimicrobials is a must. The concept of antimicrobial for every patient should be eradicated. Antimicrobial policy should be developed and it must be ensured that it is implemented. Antimicrobial policy should be developed for every unit, ward, including ICU, operation theatre and regular monitoring should be done to ensure that antimicrobial policy is strictly implemented. Emphasis should be made on the use of drugs from the essential medicines list, and such list should be readily available in the ICU. Rotation therapy of antimicrobials should be followed to deal with the problem of resistance, restricting the drug formulary can also help in reducing antimicrobial resistance. Empirical therapy should be used only in an emergency and should be guided by the antimicrobial policy of the hospital, common causative organisms of nosocomial infection and local resistance pattern. These steps will ensure rational prescribing of antimicrobial agents and also decrease the risk of development of resistance to antimicrobial agents. The hospital staff should regularly be made aware of recent updates, changing patterns of resistance, and availability of new antimicrobials. The presence of a clinical pharmacologist in every ICU setup will ensure rational use of antimicrobials in a cost effective manner. The antimicrobial stewardship program is a must for every hospital and it should seek to achieve optimal clinical outcomes related to antimicrobial use, minimize toxicity and other adverse events, reduce the costs of health care for infections, and limit the selection for antimicrobial resistant strains.

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