



A cross sectional survey on perceptions of health care providers about implementation of antibiogram in a tertiary care hospital

Linu Mohan P*¹, Vrushabendra Swami²

1 Research Scholar, Shri Jagdishprasad Jhabarmal Tibrewala University, Jhunjhunu-Churu Road, Vidyanagari, Dist Jhunjhunu, Churela, Rajasthan, Pin- 333001, India.

2 Professor & Head, Department of Pharmacology, East Point College of Pharmacy, Virgo Nagar Post, Avalahalli, Bengaluru, Karnataka, 560049, India.

ARTICLE HISTORY

Received: 02.06.2017

Accepted: 12.07.2017

Available online: 30.09.2017

Keywords:

Survey, Perceptions, Health care providers, Antibiogram

*Corresponding author:

Email : linupanakkal@gmail.com

Tel.: +91-9895590707

ABSTRACT

To make appropriate use of antimicrobials many health care professionals are following national database which serves as a general guide, particularly for empirical therapy when culture results are not available. In many cases when patients have been treated with antimicrobial agents, the culture results may be negative. Following this practice for a long term may result in antibiotic resistance. Developing an antibiogram with local infection pattern in each hospital for the proper use of antimicrobial will reduce the resistance chances. The present study is a cross sectional survey on perceptions of health care providers about implementation of antibiogram in a tertiary care hospital at Malappuram, Kerala. A preliminary assessment validated questionnaire with twelve questions was designed to collect information about existing attitudes on antimicrobials among health care professionals and their opinion on need for developing an antibiogram for empirical antibiotic therapy in the institution. All the data collected was analysed by using a scoring system. Majority of the respondents in the study was doctors and they suggested that antimicrobial resistance is a problem of this institution. Most respondents agreed that use of cumulative antibiogram for empirical therapy can improve patient care and will reduce the problem of antimicrobial resistance. This response strengthens importance of establishing a cumulative antibiogram.

INTRODUCTION

The hospital antibiogram is a periodic summary of antimicrobial susceptibilities of local bacterial isolates submitted to the hospital's clinical microbiology laboratory. Antibiograms are often used by clinicians to assess local susceptibility rates, as an aid in selecting empiric antibiotic therapy.

Antibiotics are one of the pillars of modern medical care and play important role in both prophylaxis and treatment of infectious diseases. The issues of their availability, selection and proper use are of critical importance to the global community[1]. Antibiotics had truly become a 'panacea' of medicine and were being used to treat even the most common and trivial types of infections, many of these non-bacterial in nature. Increasing bacterial resistance is a current and worrisome problem, especially in the nosocomial setting. The widespread

use of antibiotics has resulted in the emergence of multidrug-resistant bacterial pathogens. The prevalence and rate of antimicrobial resistance among important gram-negative pathogens are increasing. B-lactamase production is a common resistance mechanism in gram-negative bacteria. Other mechanisms of resistance include decreased antimicrobial agent penetration, altered target sites, and efflux pumps. Because of the increased frequency of resistant gram-negative pathogens, the selection of appropriate antimicrobial therapy is becoming more challenging to clinicians[2].

Antibiograms are currently used to estimate the impact of changes in antibiotic usage and to determine infection control strategies and antibiotic usage policies. Furthermore, within the nosocomial setting; antibiograms are often taken into account to define a rational selection of the empirical antimicrobial therapy for treating patients with hospital-acquired infections. So this study is carried out to analyse the opinion of different health care

professionals who are handling antibiotics in patient care about the need of implementation of antibiogram in a tertiary care hospital.

MATERIALS AND METHODS

The study was carried out in a 550 bedded tertiary care teaching hospital situated in, Malappuram district of Kerala. The hospital is unique and people from all over the state come and avail its facilities. A preliminary assessment questionnaire with 12 questions was designed to collect information about existing attitudes on antimicrobials among health care professionals and their opinion on need for developing an antibiogram for empirical antibiotic therapy in the institution. This questionnaire enquires the details like demography, antibiotic resistance, hand hygiene protocol, overused antibiotic, use of cumulative antibiogram for empirical therapy, relation between cumulative antibiogram and antimicrobial resistance, staff awareness about antimicrobial resistance etc. Content validation of the questionnaire was done with the help of expert committee. A cross-sectional survey was carried out amongst a convenience sample of health care professionals including physicians, nurses, pharmacist, lab technicians and administrative staff, using the prepared questionnaire which was collected after filling. Participation was voluntary, anonymous and without compensation. The respondents assured that anonymity would be maintained, and ethical principles would be followed. Before the administration of questionnaires, the background and intentions of the survey were explained to the participants. All the data collected was analysed by giving a scoring of 0 for the response neither, 1 for agree, 2 for strongly agree and -1 for disagree, then -2 for strongly disagree. Finally all the data were tabulated based on this.

RESULT

In this survey, a total of 40 professionals including doctors, nurses, pharmacist, lab technicians and administrative staffs were participated. The survey was conducted among people who are directly involving in patient care with antimicrobials. Majority of respondents were doctors (50%) followed by pharmacist, nurses, etc. (Table 1) During the survey pre validated questionnaire which consist of twelve questions related to the perception of health care providers about antibiogram was distributed and their opinion on each question was collected. By analysing the response using a scoring system the result was obtained as shown in the Table.2 in which respondents shows agreement with questions 1,2,4,5,6,7,8,9,10,11 and disagreement with questions 3 and 12. Figure 1 indicates overall response of the participants.

DISCUSSION

For several decades antimicrobial resistance (AMR), has been a growing threat to the effective treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi. AMR results in reduced efficacy of antibacterial, antiparasitic, antiviral and antifungal drugs, making the treatment of patients difficult, costly, or even impossible. The impact on particularly vulnerable patients is most obvious, resulting in prolonged illness and increased mortality. The magnitude of the problem worldwide and the impact of AMR on human health, and on costs for the health-care sector and the wider societal impact, are still largely unknown³. The current study, focus on the importance of establishing a cumulative antibiogram in a tertiary care referral hospital.

The actual need of this cumulative antibiogram in this setting

Table 1 : Profession wise distribution of respondents

Profession	Number of Respondents	Percentage (%)
Doctors	20	50
Nurse	6	15
Pharmacist	8	20
Lab technicians	4	10
Administration	2	5

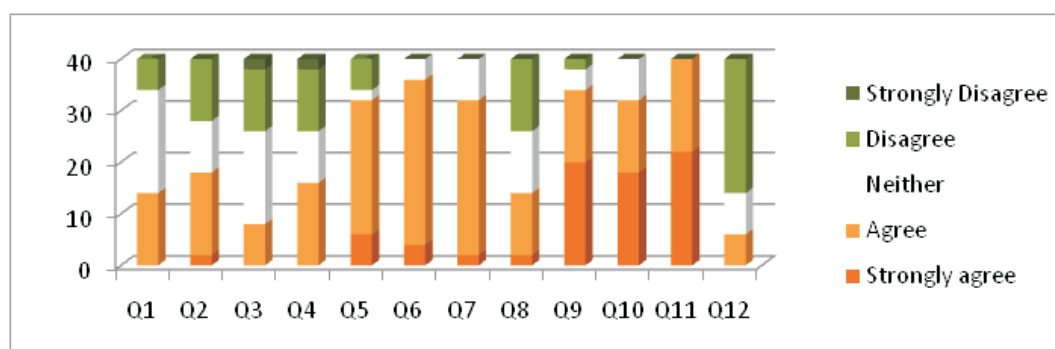


Fig. 1 : Response for each survey question

Table 2 : Assessment from the questionnaire

Sl No	Questions	N=40					Total Score
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	
1	Antibiotic resistance is a problem in this institution	0	14	20	6	0	8
2	Adherence to hand hygiene protocols is excellent at this institution	2	16	10	12	0	8
3	A patient is likely to develop antimicrobial resistance during their stay at this institution	0	8	18	12	2	-8
4	Antibiotics are overused at this institution	1	16	10	11	2	3
5	Majority of patients admitted to this institution will be prescribed at least one antibiotic during their hospital stay	6	26	2	6	0	32
6	Few of patients are discharged from this institution on antibiotics.	4	32	4	0	0	40
7	Microbiology lab results are efficiently communicated to the treating physician	2	30	8	0	0	34
8	Physicians regularly refer to the susceptibility/sensitivity patterns at this institution	2	12	12	14	0	2
9	Use of cumulative antibiogram for empirical therapy can improve patient care.	20	14	4	2	0	52
10	Use of cumulative antibiogram reduces the problem of antimicrobial resistance	18	14	8	0	0	50
11	health care professional need to be aware about the threat of antimicrobial resistance	22	18	0	0	0	62
12	This institution provides adequate staff education regarding antibiotic resistance	0	6	8	26	0	-20

was assessed by administering a preliminary questionnaire with set of twelve questions to health care professionals. About 40 health care providers were responded to the questionnaire the result was assessed by scoring system. Majority of them agreed (+8) that antimicrobial resistance is a problem of this institution. Thus this result pointed an intervention in this field is inevitable. They agreed that hand hygiene protocols is excellent at this institution. *Garner et al* found that hand washing is important factor in the prevention of transmission of acquired infection. *M.Salman shah et al¹* found that 28% of doctors had no idea about importance of hand washing. Respondents agreed (+3) that Antibiotics are overused at this institution. So this conveys the importance of reducing the antimicrobial consumption. Mass majority respondents agreed that Use of cumulative antibiogram for empirical therapy can improve patient care (+52) and reduce the problem of antimicrobial resistance (+50). *M.Salman shah et al* also ascertain the importance of antibiogram in empirical therapy by (80%) of respondents. The respondents agreed (+62) that health care professional need to be aware about the threat of antimicrobial resistance. They all respond that staff education regarding antibiotic resistance is inefficient in this institution. Hence this results reflects the scenario of under developed countries especially India about lack of their continuation health

educational program. So the response from questionnaire strongly supports the need of the antibiogram for a tertiary care referral hospital and to assess the impact.

CONCLUSION

Antibiotic resistance is a serious threat to public health in India, leading to increasing healthcare costs, prolonged hospital stays, treatment failures and deaths. Cumulative antibiogram is a report which summarizes the susceptibility of commonly isolated microorganisms to usual antibiotics in a defined period of time. Many studies suggest that use of antibiogram will ensure the proper use of antimicrobials, thereby reducing the chances of resistance. By assessing the perception of health care professionals about implementation of antibiogram in a tertiary care hospital, many opinioned that as there is an over use of antibiotics and resistance is one of the major issues over the institution, it is mandatory to implement an antibiogram. Majority of the respondents agreed that, use of antibiogram for empirical therapy will improve patient care and it may reduce the problem of antimicrobial resistance which is a big threat nowadays. So the study highly recommends each health care institution who is dealing with antibiotics to implement and follow antibiogram to control chances of resistance.

REFERENCE

1. TeferraAbula, Mohammed Kedir. The pattern of antibiotic usage in surgical inpatients of a teaching hospital, North West Ethiopia. *Ethiop. J. Health Dev*, 2003; 18(1):35-39.
2. Alfonso J Alanis. Resistance to Antibiotics: Are we in the post Antibiotic Era. *Achieves of Medical Research*. 2005; 36:697-705.
3. Mc Geer A. News in antimicrobial resistance: documenting the progress of pathogens. *Infect Control Hosp Epidemiology*. 2004; 25: 9798.
4. M. Chauhan, Manish S and S. Mahajan. Aerobic Bacterial Profile and antibiotic sensitivity pattern of pusisolates in a tertiary care Hospital. *International journal of current microbiology and applied science*. 2015; 4 (5): 784-787.
5. Carlos Bantar et al. Are laboratory-based antibiograms reliable to guide the selection of empirical antimicrobial treatment in patients with hospital-acquired infections. *Journal of Antimicrobial Chemotherapy*. 2007; 59: 140143
6. Garner J.S. The Hospital infection control practise advisory committee guidelines for isolation precaution in hospitals. *Infection Control Hospital Epidemiology*. 1996; 17:1-80