



RESEARCH ARTICLE

STUDY ON PREVALENCE OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS IN POST SURGICAL SITE INFECTION IN A TERTIARY CARE HOSPITAL.

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Abstract

Objective: To study the prevalence of Methicillin Resistant Staphylococcus aureus (MRSA) in post surgical site infection in Patna Medical College Hospital, India. **Materials and Methods:** The study was conducted on 980 pus samples, obtained from post surgical wounds from January 2012 to December 2012. **Results:** Out of total 980 samples the incidence of Staphylococcus aureus was high (29.27%). Among S. aureus the prevalence of MRSA was 24.25%. All isolates were sensitive to vancomycin. **Conclusion:** MRSA is a serious nosocomial pathogen in surgical site infections. Hospital disinfection and treatment protocols should be strictly followed.

Key Words: Methicillin Resistance, Post surgical site, S. aureus.

INTRODUCTION

Post operative wound infections are major global problem in surgery leading to various complications [1] such as prolonged hospital stay, pain, discomfort etc. These infections can occur due to exogenous and endogenous micro organisms that enter the operative wound during the course of surgery [2]. S. aureus forms a part of normal flora and can be isolated from noses of 60% of healthy persons. It is readily transmitted from person to person through hands and is the commonest cause of nosocomial infections [3]. The problem was solved by the introduction of penicillin in 1942 but by 1950 widely resistant organism developed because of the production of enzyme beta-lactamase by the organisms which destroys penicillin [4]. Then newer derivatives



of penicillin such as methicillin, cloxacillin and oxacillin were discovered which were resistant to staphylococcal beta-lactamase [5]. The present study attempts to find the prevalence of MRSA in surgical wounds and to find the antimicrobial susceptibility pattern of the isolates.

MATERIALS AND METHODS:-

The study included 980 pus samples from surgical wounds which were received in the Department of Microbiology Patna from January 2012 to December 2012. All samples were inoculated onto Mac Conkey agar plates and Blood agar. These were incubated aerobically at 37°C for 48 hrs and the isolates were identified using standard laboratory procedures [6]. All isolates of staphylococci were tested for oxacillin susceptibility by agar screen method using 6µg/ml oxacillin. Plates were incubated at 35°C and reading after 24 hrs was taken. Bacterial growths around oxacillin were taken as MRSA [7] [8] [9] [10]. All MRSA strains were tested to amoxicillin, amikacin, ciprofloxacin, cephalixin, teicoplanin, vancomycin, gatifloxacin, doxycycline by standard disc diffusion method [7]

RESULTS:

Total 980 post surgical wound swabs were received and among them 690 were culture positive. Out of these 202 (29.27%) isolates were identified as *Staphylococcus aureus*. Out of 202 *S. aureus* isolates 49 (24.25%) were strains of Methicillin Resistant *Staphylococcus aureus* (MRSA). Highest efficacy was observed with vancomycin with 100% sensitivity of all MRSA isolated to the drug. The sensitivity of methicillin resistant staphylococci to other antibiotics was as follows: teicoplanin 60%, gatifloxacin 51%, amikacin 35%, cephalixin 20%, ciprofloxacin 16%, amoxicillin 5%.

DISCUSSION:

Most post surgical wound infections are hospital acquired [11]. *S. aureus* proves to be the single most important bacterial species in aetiology of post surgical wound infections [12] [13] [14] [15]. In our study we tried to find out the prevalence of *Staphylococcus aureus* and MRSA in post surgical site infection. High incidence of *S. aureus* was reported which was 29.27% and was reported by others also [8][16][17]. The prevalence of MRSA was 49 (24.25%) which was quite high [8][9][18]. All isolates of MRSA were sensitive to vancomycin (100%) [8][15][14].

CONCLUSION:

Our predominant post surgical site infection was *S. aureus* (29.27%) and MRSA constituted (24.25%). Periodic surveillance of bacteria and antibiotic susceptibility and also hand washing among the health care personnel is important in reducing the surgical site infection.

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