Frequency and related factors of nosocomial infections in ICU of tertiary hospital in Tehran, Iran, according to NNIS

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Backgrounds: Nosocomial infections (NIs) are one of the problems of past and recent centuries, cause of the urge of cost and expenditure to patients and health systems. Therefore identification of their incidence, related factors and prevention ways is especially important.

Materials and Methods: This study was performed on 691 patients who were admitted to Intensive Care Unit (ICU) of Shaheed Mustafa-Khomeini hospital from 1385–1386. The collection of data was done to according of questionnaire of the national nosocomial infection surveillance system (NNIS). The clinical signs and symptoms of patients were frequently controlled. In suspected patients, necessary laboratory tests and cultures was done. Data was analyzed by SPSS version 15 software.

Results: The incidence of NIs was 10.85 percent. The most common type of infections was pneumonia (77.3%), UTI (18.3%), surgical site infection (2.7%) and blood infection (1.3%). The most common microorganisms in pulmonary infections were Acinetobacter SPP, in UTI E. coli, in surgical site Staphylococcus aureus and Klebsiella SPP, in blood infection Enterococci SPP, respectively. Incidence of pneumonia significantly is more than of other (p = 0.01). The correlation of ICU stay time and incidence of NIs is significant (p = 0.001). The effect of age, gender and invasive procedures were not significant.

Discussion: According to results of investigation, increasing of ICU stay time has direct relation with risk of infections. Infection control practices and sanitary methods are rational and essential part in the ICU. We suggest to use of invasive procedures limited to necessary times and use of aseptic method in treatment process.

Detection rate and drug resistance of ESBL-producing Escherichia coli in a hospital

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Objective: To investigation the detection rate and drug resistance of extended-spectrum beta-lactamases (ESBLs) in Escherichia coli and to guide the reasonable use of antibiotics.

Methods: The conventional methods were employed for the cultivation, isolation and detection of bacteria, and API microorganism accredit system was used for the semi-automatic identification. Kirby-Bauer (K-B) method was used for the antimicrobial susceptibility test in accordance with the standard issued by Clinical and Laboratory Standards Institute (CLSI).

Results: 668 Escherichia coli strains were isolated in specimens collected from the patients in last three years in a hospital, and the prevalence of ESBLs was 53.6%. The annual detection rate of ESBLs was 51.2%, 56.8%, 64% respectively. Tests in vitro showed that imipenem, meropenem, amikacin, piperacillin/tazobactam, cefoperazone/sulbactam, cefoxitin, and ceftazidime were effective to E. coli producing ESBLs. The drug resistance rate in E. coli producing ESBLs was higher than that in E. coli non-producing ESBL.

Conclusion: The detection rate and the drug resistance of ESBLs-producing Escherichia coli show an upward tendency in the hospital during last three years. The severe infected patients caused by ESBLs-producing Escherichia coli should be preferentially used carbopenems for treatment.

Antibiotic susceptibility and extended spectrum beta-lactamases in urinary isolates of Enterobacteriaceae in Mashhad, Iran

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Background: Antibiotic resistance among Enterobacteriaceae isolated from urinary tract infections is increasing. A part of this resistance is from production of extended spectrum beta-lactamases (ESBLs), making urinary tract infection difficult to treat. In this study, prevalence of ESBL-producing Enterobacteriaceae strains and their antibiotic susceptibility patterns were determined.

Methods: One-hundred clinical isolates of Enterobacteriaceae (76 Escherichia coli, 16 Klebsiella pneumoniae, five Enterobacter sp., two Proteus sp. and one Citrobacter sp.) were collected from urine samples of inpatient and outpatient in 17-Shahriar and Ghaem Hospitals in Mashhad. Antibacterial susceptibility test was performed by disc diffusion method. ESBL producers were detected by double disc approximation test and CLSI (Clinical Laboratory Standards Institute) confirmatory test.

Results: ESBL production was found to be 29% (19 E. coli, eight K. pneumoniae, two Proteus) of isolates. A high rate of associated resistance to co-trimoxazole, nalidixic acid, and gentamicin was found in ESBL producers (p ≤ 0.05). All isolates were susceptible to imipenem and amikacin.

Conclusion: According to the results, ESBL-producing Enterobacteriaceae in the studied population is higher compared to the developed country. Considering the association of ESBL-producers with resistance to some non-beta-lactam antibiotics, amikacin and imipenem are revealed to be an appropriate drug for treating such patients.

Clinical case of botulism

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Study objectives: The early diagnosis of botulism disease, as a rare infectious disease with high mortality.

Background: Botulism is a rare form, but fatal, of food poisoning caused by a powerful toxin produced by C. botulinum. This toxin binds to receptors on peripheral nerves. The toxin prevents nerve impulses, causing flaccid paralysis which may be fatal. After consuming contaminated food, symptoms of botulism usually appear within 1–2 days but sometimes this phase can last up to one week. Initially affects senses of sight and swallowing, then it is followed by muscle paralysis which firstly is localized at scalp region. If respiratory muscles are affected it may cause death. After muscle paralysis, the ability of swallowing is hindered, while the paralysis of the head muscles gives the characteristic syndrome of “floppy baby symptoms”. Impaired respiratory muscles, hinders breathing and cause death.

Presentation case: The patient A.N 26 years old, presented at the infective disease clinic in a stuporous state 9–10 points G-C-S, doesn’t communicate but is able to gesticulate, it has palpebral ptosis and profuse vomiting. Objective examination: the patient is pale, photoreaction, TA 40/0, aphony, dyspnea with paroxysmal crisis of breathing. After the consultation was concluded for a poisoning from an unknown poison, the other patient became grave with dyspnea and profuse vomiting. The contact kept with the Toxicology Clinic showed that we
had to do with a poisonous case caused by C. Botulinum by food. The case was treated with botulinum anatoxin type B.

Conclusion: This case shows that there are still rare diseases that can occur and which might be without specific clinical and biochemical signs, without anamnesis data, so we should be attentive to diagnose these cases and reanimate in order to minimize death cases.

**PP-041 Efficacy of chloramphenicol combined with erythromycin in treatment of 21 pneumonia patients infected with multi-drug resistant Pseudomonas aeruginosa**

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**Background:** Following antibiotics being used in hospitals generally, pneumonia patients infected with multi-drug resistant P. aeruginosa can not be ignored. The aim of this research was to observe the efficacy of chloramphenicol combined with erythromycin in treatment of pneumonia infected with multi-drug resistant P. aeruginosa.

**Methods:** A retrospective clinical study on 21 patients with pneumonia infected with multi-drug resistant P. aeruginosa was carried out from January 2007 to December 2010. Clinical features, drug-resistant features and results of susceptibility test were analysed.

**Result:** All of the 21 patients were resistant to the third generation cephalosporin and carbostyril. Treated with imipenem and sodium cilastatin, mesomerism observed in 16 patients, and drug resistance appeared in five patients. Then, switched to treating with chloramphenicol combined with erythromycin, 12 patients cured, five patients improved, inefficacy appeared in four patients. Totally, ratio of patients improved was 23.8 percent while which of patients cured was 57.4 percent. 80.94 percent of all the drug-resistant patients were improved.

**Conclusion:** Incidence rate of pneumonia associated with P. aeruginosa is always higher than that resulting from other etiological agents. Diagnosed in time and treated with suitable antibiotic are profited to cure and prevention of hospital acquired pneumonia resulting from P. aeruginosa.

**PP-042 A case with erysipelas caused by beta hemolytic Streptococcus, as a cause of sepsis state**

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Erysipelas is an acute infection, used by Group A beta hemolytic Streptococcus. It is characterized by inflammatory plaque well limited by surrounded tissues that affect the face and the trunk. In order to develop erysipelas it must be a focus with erysipelas at the presence of favorable conditions such as the lower of organism’s resistance. It is characterized by tachycardia 90, fatigue, serious diseases convalescence.

**Presentation case:** Patient N.B, 70 years, appeared at the infective disease clinic with the diagnose: Erysipelas cruris sin. The patient presented: temp 40 degrees, PA 70/40 mm Hg, tachycardia 90°, accentuated redness and edema of the left crural region.

The main examinations were taken and the treatment started with Tazocina 4.5×4 fl l.v, amikacin 500 mg×2 l.v, solution, NaHCO3, K and vasoconstrictor like dopamine. Examinations: Erythrocytes 3,700,000, Leukocytes 13,000, AZotemia 180 mg%, Creatinine 4.3 mg%, Glucose 87 mg%, the patient had anuria in spite of the presence of the catheter. From the microbiological examination it resulted Beta hemolytic Streptococcal. Patient has acrocyanosis signs at the toes, cellulite, predisposed by hypotension and CID.

**Discussion:** Streptococcal infections may assume the character of septicaemia at the presence of favorable conditions such as the lower of organism’s resistance.

**Conclusions:** Streptococcal diseases remain one of the most problematic morbidity for the organism. The importance of the problem solution is: early diagnosis, adequate and efficient treatment, preventing systemic multi-organ complications.

**PP-043 Staphylococcus epidermidis contains ampicillin resistant gene**

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**Background and Objective:** Staphylococcus epidermidis is coagulase negative, gram positive cocci that reside naturally on human skin. Staphylococcus epidermidis has emerged as a major nosocomial pathogen. The main objective of the study was to determine whether Staphylococcus epidermidis contains any antibiotic resistance gene. Also to ascertain the size of the plasmid of clinical isolates of Staphylococcus epidermidis collected locally and to find out the restriction sites present in the plasmid.

**Methods:** Conventional Strains of Staphylococcus epidermidis were collected from Pakistan Institute of Medical Sciences (PIMS), Islamabad, Pakistan and identified by using different biochemical tests. Overnight shaking of Staphylococcus epidermidis colonies at 250 rpm at 37°C was done, in LB medium containing Ampicillin. Alkaline miniprep extraction protocol and Gene JETTM Plasmid Miniprep kit (Fermentas) protocol were used to isolate plasmid DNA. The isolated plasmid was checked for restriction fragment by using EcoRI and Hind III restriction endonucleases.

**Results:** The clinically isolated samples of Staphylococcus epidermidis were negative for Indole production test and Citrate utilization test. Samples were positive for Nitrate reduction test, Starch hydrolysis test and Catalase test. After overnight shaking at 250 rpm at 37°C bacterial growth appeared in the LB medium containing Ampicillin. Alkaline miniprep extraction gave minimum yield for Staphylococcus epidermidis. Gene JETTM Plasmid Miniprep kit (Fermentas) gave higher yields and comparatively pure DNA. It was found that Staphylococcus epidermidis had plasmid of size 14kb. Restriction fragments of 10kb and 4kb were obtained when plasmid was digested with EcoRI. The plasmid remained intact when digested with Hind III. The resulted fragments were analysed on 1% agarose gel.

**Conclusion:** Clinical isolates of Staphylococcus epidermidis contains Ampicillin Resistant Gene.

**PP-044 Analysis of 87 septicemia cases**

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**Background:** Septicemia are common in the infectious disease department or the emergency departments. Pathogens and primary infection maybe different among different departments. The objective of this study was to