Incidence and Risk Factors of Infections due to Management of Urological Patients - Kasr Al-Ainy Hospital

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ABSTRACT

Surgical site infections are serious problem worldwide. Urosurgery department is one of the departments with high rate of infection in the hospital. However, detailed information about the incidence and risk factors of infection in the department is deficient.

The general objective of the study is to decrease the incidence of surgical site infections among the urosurgical patients attending Kasr Al-Ainy hospital.

The study was conducted in the urosurgery department and included 125 patients. The study was divided into two parts; analytic part including the preoperative and postoperative care of patients in order to find out the incidence and risk factors of infection and descriptive part to collect data about the structure of the department and the performance of medical care providers. The opinion of the care givers about the cause of infection in the department was elicited through focus group discussion.

Results of the study showed that the incidence of postoperative urine infection amounted to 70.3 % and 34.5 % of the wounds acquired infection. Presence of chronic diseases, presence of preoperative and postoperative catheters, and the intake of chemoprophylaxis were significant risk factors for infection. Gram negative bacilli were the most common isolated pathogens from postoperative urine samples.

Recommendations were designed to prevent hospital infection.

Key words: Incidence – Risk factors – Surgical site infections – Urology – Urine infection.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

AER	Automatic endoscope reprocessing
AMP	Antimicrobial prophylaxis
ASA	American society of anesthesiologists
CDC	Centres for disease control and prevention
CI	Confidence interval
CO2	Carbon dioxide
DNA	Deoxyribonucleic acid
ECG	Electro cardiography
EGF	Epidermal growth factor
ELISA	Enzyme-linked immunoassay
EPA	Environmental protection agency
FGF	Fibroblast growth factor
HIV-1	Human immunodeficiency virus 1
H2O2	Hydrogen peroxide
IGF-1	Insulin like growth factor-1
IV	Intravenous
JCAHO	Joint commission on accreditation of health care organization
Log	Logarithm
LPLND	Laparoscopic pelvic lymph node dissection
LRP	Laporoscopic radical prostatectomy
MRSA	Mecithilin resistant staphylococcus aureus
NNIS	National nosocomial infections surveillance

OPA	Ortho-phthalaldehyde
OR	Odds ratio
OSHA	Occupational safety and health administration
PCR	Polymerase chain reaction
PDGF	Platelet derived growth factor
PH	Power of hydrogen
RNA	Ribonucleic acid
SSI	Surgical site infection
TGF-alpha	Transforming growth factor alpha
TGF-beta	Transforming growth factor beta
TPN	Total parentral nutrition
USA	United States of America
UTIs	Urinary tract infections
UV	Ultraviolet
VISA	Vancomycin intermediate staphylococcus aureus
VRE	Vancomycin resistant enteroccocus
X^2	Chi square

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Health care associated infections are a growing international problem that affects millions of people worldwide, complicate the delivery of patient care, contribute to patient death and disability, promote resistance to antibiotics, and generate additional expenditure to that already incurred by the patient's underlying disease **(Pittet and Donaldson, 2005)**.

Hospital acquired infections or health care associated infections are infections that first appear two days after a patient is admitted to a hospital or other health care facility and include all clinically evident infections that do not originate from the patient's original admitting diagnosis. It is also called nosocomial infections **(Pert, 1997)**.

Four types of infections account for more than 80 percent of all nosocomial infections which are urinary tract infections, postoperative wound infections (surgical site infections), blood stream infections, and pneumonia **(Pittet and Donaldson, 2005)**.

Postoperative wound and urinary tract infections in urology are major causes of illness among surgical patients and are associated with longer hospitalization and higher costs **(Singhal et al, 2006)**.

These infections can occur after both open and endoscopic operations. In Japan, the overall incidence of postoperative wound infections after open urological operations was about 33% **(Takeyama et al, 2005)**.

In a French study done to quantify the complications of transurethral resection of prostate occurring during the first three postoperative months, twenty four percent of patients experienced at least one complication and the most frequent of which was asymptomatic bacteriuria in 8.5% **(Fourcade and vallancien, 2000)**.

In Egypt, several studies were conducted in the field of hospital acquired infections in the recent years as a trial to overview the scope of the problem and get a trial to control the infection.

A study was done in Damanhour Teaching Hospital for identification of surgical site infection rate in different surgical wards, the results showed that patients from orthopedic and plastic surgery wards were more liable to infection as the rate of infection was 66.6%, followed by patients from urology ward (50%), general surgery ward (21.5%), and zero prevalence in Ear-Nose-Throat surgery and neurosurgery wards **(Micheal, 1999)**.

Advances in infection control practices occurred, yet postoperative infections remain a substantial cause of morbidity and mortality among hospitalized patients. This may be partially explained by the emergence of antimicrobial – resistant pathogens and the increased numbers of surgical patients who are elderly and/or have a wide variety of chronic, debilitating, or immunocompromising underlying diseases**.**

Thus, to reduce the risk of post operative wound and urinary tract infections, a realistic systematic approach must be applied with the awareness that this risk is influenced by characteristics of the patient, operation, personnel, and hospital **(Mangram et al, 1999)**.

Rationale of the study:

Urosurgery department is among the departments with high rate of infection in the hospital. There is no data about the incidence and risk factors of infection in urosurgery department - Kasr Al-Ainy hospital. Due to deficient data, we perform this study in a trial to throw a light on this problem and take a step to minimize it.

Aim of the study