Section 2 - Executive summary of the project

INTRODUCTION

Hospital acquired infections (HAI) or nosocomial infections have become increasingly complex over the past 20 years. More than 2 million people acquire a HAI each year. The frequent use of invasive devices in the intensive care units (ICU's), especially central venous catheters and mechanical ventilators is associated with a further risk of nosocomial infections. Increasing use of broad spectrum antimicrobials to treat these infections has led to major problems with multiply antibiotic resistant bacteria in special care units. Ventilator Associated Pneumonia (VAP), Catheter related Urinary Tract Infections (UTI) with sepsis, Primary blood stream infections (BSI) and skin sepsis, account for more than 70% of all nosocomial infections.

JUSTIFICATION

Nosocomial infections with multiply resistant Gram-negative and Gram-positive bacteria are increasing in intensive care units. At present most ICU's, lack effective and appropriate antibiotic guidelines to treat such infections either empirically or definitively, since insufficient local data are available on colonizing and pathogenic bacteria in ICU's and criteria to distinguish colonization and infection are not well established. The result is an excessive and inappropriate use of broad spectrum antibiotics which is both economically unacceptable in this country and also results in the acquisition and spread of multi resistant bacteria not only in the ICU's but in general wards as well.

Effective treatment of these infections, prevention of cross infections by good infection control practices and formulation of antibiotic guidelines for the ICU require surveillance of the colonizing flora and pathogens in any particular ICU together with the antibiotic resistance patterns of the isolated bacteria.

GENERAL OBJECTIVES

1/ To study the dynamics of colonization in the pathogenesis of nosocomial ICU infections
2/ To formulate guidelines for the appropriate use of antibiotics in the empirical treatment of nosocomial ICU infections
3/ To formulate criteria that could definitively identify colonizing bacteria from pathogens.
4/ To provide reliable information to clinicians that would enable them to use antibiotics appropriately to treat infections definitively.

MATERIALS AND METHODS-

Study setting and design-

A prospective cohort study of patients admitted to intensive therapy unit (ITU) at the Teaching Hospital, Karapitiya and who were there for more than 72 hours

Microbiological methods-

All patients were be screened for bacterial colonization by collecting urine specimens from catheterized patients, throat swabs or endotracheal aspirates from ventilated patients and surface swabs of all vascular access sites within 24 hours of admission. Thereafter the same sites were sampled 3 days later.

To isolate bacteria causing nosocomial infections, appropriate specimens of tracheal aspirates, urine, blood and swabs from infected surfaces were taken, whenever there was clinical, radiological and or laboratory indication of an infection.

All specimens were taken to the laboratory within 1 hour of collection or stored at 4°C (except blood) until transported. Patient data was collected in a standard questionnaire.

The samples were processed according to standard laboratory procedures and all isolates were identified and stored. The isolates were identified using morphological and biochemical characteristics and tested for antibiotic susceptibility using the NCCLS method against a predetermined list of antibiotics. Those isolates that could not be speciated using