

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background

Urinary tract infection (UTI) remains very common. More than 100000 hospitals admissions per year account for significant morbidity and health care cost. As many as 50% of women report having had at least one UTI in their lifetimes and in the UK, it is estimated that one woman in three will have a UTI before the age of 24. UTI's are a lot less common in men. It is estimated that every year in the UK, in otherwise healthy men, only one in every 2,000 will develop a UTI. Urinary tract infection is the most common cause of infection in nursing home residents and the most common source of bacteremia in the elderly population. Urinary tract infection occurs in patients with structurally or functionally abnormal urinary tracts (complicated UTI) and in patients with anatomically normal urinary tracts (uncomplicated UTI) (Barry, 2005).

There are many pathogens that contribute as a causal factor of UTI and the upcoming bacteria affiliated with UTI is *Klebsiella pneumoniae*, which is part of the *Enterobacteriaceae* family. *Klebsiella pneumoniae* causes 90% of *Klebsiella* sp. infections and can be considered a community-acquired infection. This indicates that attention should be given upon this pathogen to bring the community towards a healthier lifestyle (Arnold, 2010).

Over the past decade, the prevalence of drug resistance in *Klebsiella pneumoniae* has increased drastically. Increasing rates of resistance among bacterial uropathogens have caused growing concern in both developed and

developing countries. Strains of *Klebsiella pneumoniae* are not susceptible to nitrofurantoin (source recently approved, it is stated that *Klebsiella pneumoniae* also shows resistance to nitrofurantoin) and has experienced increasing drug resistance to ampicillin, trimethoprim, and ciprofloxin (Nicolle, 2001).

From the details above, it can be concluded that the rise in bacterial resistance to antibiotics complicates the clinical management of urinary tract infection caused by strains of *Klebsiella pneumoniae*. Although *Klebsiella pneumoniae* is not the most common causal pathogen in UTI, attention should be paid into this pathogen as untreated urinary tract infections can develop into very serious and potentially life-threatening kidney infections (pyelonephritis) that in turn can permanently scar or progressively damage the kidneys. The infection may also spread into the bloodstream (called sepsis) and then elsewhere in the body (Ronald, 1997).

The main aim of this study was to determine the comparison of antimicrobial susceptibility pattern of *Klebsiella pneumoniae* in urine isolated from patient hospitalized in RSSA in year 2009/2010 and 2010/2011 and to evaluate the results so that the optimal empirical antimicrobial therapy for such patients could be determined.

## 1.2 Problem Formulation

How is the susceptibility pattern of *Klebsiella pneumoniae* isolated from urine of patient hospitalized at Dr.Saiful Anwar General Hospital towards antimicrobials in year 2009/2010 and 2010/2011?

## 1.3 Objective

### 1.3.1 General Objective

To obtain the pattern of susceptibility of *Klebsiella pneumoniae* isolated from urine of patient hospitalized at Dr.Saiful Anwar General Hospital towards antimicrobials in year 2009/2010 and 2010/2011.

### 1.3.2 Specific Objective

1.3.2.1 To determine whether there is an alteration of antimicrobial susceptibility pattern of *Klebsiella pneumoniae* isolated from urine of patient hospitalized in year 2009/2010 at Dr.Saiful Anwar General Hospital, Malang.

1.3.2.2 To determine whether there is an alteration of antimicrobial susceptibility pattern of *Klebsiella pneumoniae* isolated from urine of patient hospitalized in year 2010/2011 at Dr.Saiful Anwar General Hospital, Malang.

1.3.2.3 To compare the antimicrobial susceptibility pattern of *Klebsiella pneumoniae* isolated from urine of patient hospitalized in year 2009/2010 and 2010/2011 at Dr.Saiful Anwar General Hospital, Malang.



1.3.2.4 Recommendation of which antibiotic still can be used for patients suffering from *Klebsiella pneumoniae* infection in Dr.Saiful Anwar General Hospital, Malang.

## 1.4 Significance of Research

### 1.4.1 Academic

The results could be used by other teaching institution as guidance for medical information.

### 1.4.2 Practical

The results of the research could be used as the basic guidance for prescribing antimicrobials for *Klebsiella pneumoniae* patients in Dr.Saiful Anwar General Hospital, Malang.

