

PREVALENCE OF *KLEBSIELLA PNEUMONIAE* IN VARIOUS CLINICAL SAMPLES IN A TERTIARY CARE HOSPITAL AT HP.

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ABSTRACT

Introduction: Klebsiella is the normal flora of human intestines and it is a soil saprophyte. It is the 2nd most common uropathogen. The *Klebsiella pneumoniae* is an opportunistic pathogen and is responsible for urinary infections, bacteremia and nosocomial infections. Therefore, it is responsible for increased morbidity and economic burden to the community.

Objective: To study the prevalence of *Klebsiella pneumoniae* in urine, pus and sputum samples.

Material and method: Various clinical samples were collected from OPD and IPD patients and were processed. Identification of the *Klebsiella pneumoniae* was done by standard bacteriological techniques.

Results: Total 10,605 urine samples and 9,623 collectively pus and sputum samples were collected. Out of which 4,030 urine and 2,406 collectively pus and sputum samples showed growth on culture media. The *Klebsiella pneumoniae* growth was observed in 130 (3.23%) urine samples and 434 (18%) of pus and sputum samples collectively.

Conclusion: The *Klebsiella pneumoniae* is developing resistance to multiple drugs by various methods now-a-days. Being an important uropathogen and the superbug evolution, it is important to keep track of the prevalence of this organism.

Keywords: *Klebsiella pneumoniae*, standard bacteriological techniques, uropathogen.

1. INTRODUCTION

Klebsiella is the normal flora of human intestines and it is a soil saprophyte. It is the 2nd most common uropathogen. The *Klebsiella pneumoniae* is an opportunistic pathogen and is responsible for urinary infections, bacteremia and nosocomial infections^{1,2}. Therefore, it is responsible for increased morbidity and economic burden to the community.

Klebsiella is a gram negative, non-motile, encapsulated, lactose fermenting, facultative anaerobe belonging to the Enterobacteriaceae family³. Important virulence factors of the *Klebsiella pneumoniae* are capsular polysaccharides, lipopolysaccharide (LPS) and siderophores⁴.

Klebsiella pneumoniae, after *Escherichia coli*, is the 2nd most common uropathogen^{5,6}.

2. MATERIAL AND METHODS

The prospective study was conducted in the department of Microbiology, Dr Rajendra Prasad Government Medical College, Kangra at Tanda, Himachal Pradesh. Various clinical specimens (pus, urine and sputum) were collected from the OPD and Indoor patients in various departments of the hospital.

Total 20,228 samples of urine, pus and sputum were cultured on blood agar and MacConkey agar. The cultures were incubated for 24 hours aerobically at 37°C. Identification of the *Klebsiella pneumoniae* was made on the basis of biochemical reactions.

3. RESULTS

A total of 20,228 clinical samples of urine, pus and sputum were collected. Out of which 4030(38%) of 10,605 urine samples and 2406(25%) of 9,623 collectively pus and sputum samples showed growth on culture media, figure 1 and 2.

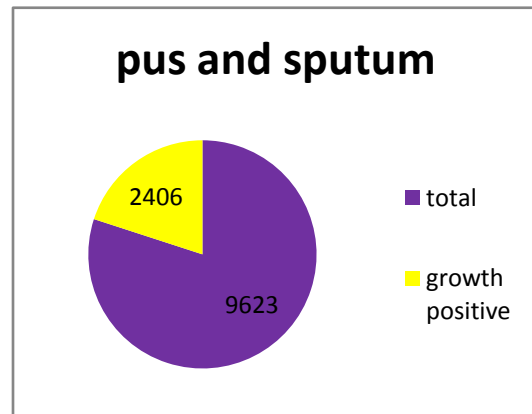
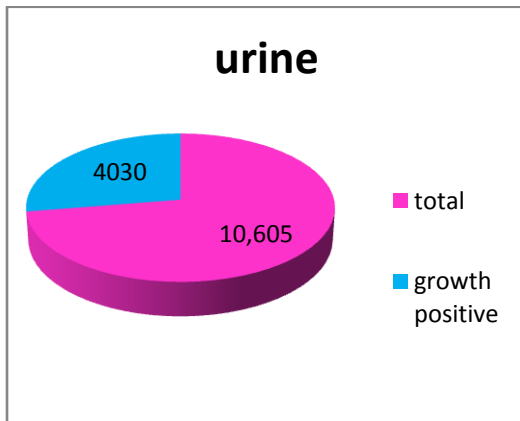


Figure 1 and 2: samples showing growth of *Klebsiella pneumoniae* in urine and pus and sputum respectively

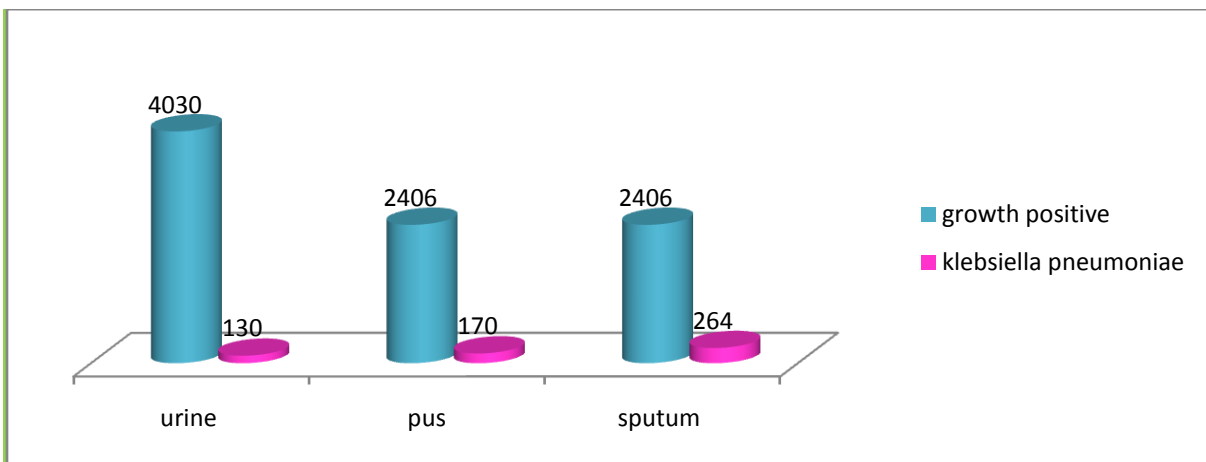


Figure 3: prevalence of *Klebsiella pneumoniae* in urine, pus and sputum samples respectively

The *Klebsiella pneumoniae* growth was observed in 130 urine sample out of 4030 cultures inoculated. The pus and sputum collectively were 2,406 cultures. Out of which 170 of pus and 264 of sputum samples showed the *Klebsiella pneumoniae* growth after overnight incubation.

4. DISCUSSION

The identification and speciation of the *Klebsiella* was done on the phenotypic basis using the standard laboratory techniques. It is a non-fastidious organism therefore ordinary media and overnight incubation was sufficient for the growth of the organism.

In this study, out of various samples received in the department of Microbiology in DRPGMC, Kangra at Tanda, HP, 4030 (38%) of urine samples and 2406 (25%) of pus and sputum sample were seen with growth of *Klebsiella pneumoniae*.

Amongst these, 130 (3.23%) samples of urine and 434 (18.03%) collective samples of pus and sputum showed the growth of *Klebsiella pneumoniae*. This was in concordance with the pooled study done by Odari et al⁷ which showed prevalence of 3% in their study.

In this study prevalence of *Klebsiella pneumoniae* in pus and sputum was observed as 18.03% which is relevant for the present institute.

5. CONCLUSION

The prevalence of *Klebsiella pneumoniae* is important to track because of its increasing trend of resistance to multiple drugs. As it is a saprophyte and an opportunistic organism, it is a very common uropathogen and a source hospital acquired infection. Therefore, keeping track of the prevalence of the organism helps to take any prompt infection control measures and to take

necessary action in antimicrobial stewardship.

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