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RESEARCH ARTICLE
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Legionella pneumophila Isolated from Cancer Patients and Hospital Environments

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ABSTRACT

A total of 360 samples (Clinical 271 and 89 environmental samples) were collected from the Oncology Center at Al-Sadr hospital in Basrah city southern of Iraq, during January- March, 2020. The clinical specimens included blood, urine and sputum, were taken from patients attending and /or admitting to the center. Meanwhile, the environmental samples were collected from air conditioners, hospital toilets and water.Three hundred isolates of presumptive Legionella sp. were identified using morphological characteristics, biochemical testing and one hundred were subjected for serotyping tests,

The morphological features of L. pneumophila on BCYE agar are all strains produce round, shiny and white colored colonies with a hardly obvious green at 3 days incubation.L. pneumophila also identified using biochemical tests, which include: catalase, oxidase, DNase, gelatin liquefaction, hippurate hydrolysis, urease, biofilm forming (tube and Congo red methods and tissue culture plate method), starch hydrolysis, citrate utilization, hemagglutination activity, protease production and lecithinase and lipase production. The serogroup of Legionella pneumophila was identified using HiLegionella Latex Test Kit. The results showed that 85 isolates were serogroup 1 and 15 isolates were serogroup 2-15. In addition to that nine types of antibiotics were used to determine the susceptibility of 93 isolates to resist them which including azithromycin 15 µg, cefotaxime 30µg, ciprofloxacin 5µg, doxycycline 30 µg, erythromycin 15 µg, levofloxacin 5µg, ofloxacin 10 µg, norfloxacin 10 µg and Rifampicin 5 µg. Furthermore, ten of 23 isolates resistance to antibiotics was subjected to the test of minimum inhibitory concentrations using MIC strips which including azithromycin, cefotaxime, ciprofloxacin and levofloxacin.

Keywords: *Antibiotic susceptibility, Cancer center, Legionella pneumophila, MIC*

INTRODUCTION

Cancer is a condition in which a collection of aberrant cells multiplies uncontrollably while defying the usual laws of cell division (Bekele, 2022). Normal cells are persistently subject to signals that specify in what order the cell should divide, develop into another cell, or die. Yet, cancer cells can become somewhat autonomous from these signals, leading to uncontrolled growth and proliferation that can be lethal if allowed to continue and spread; In reality, tumor metastasis a process known as tumor spread causes about 90% of cancer-related fatalities instances (Baloch et al., 2022; Heald, 2021). Legionella microorganism is ubiquitous and found worldwide naturally in rivers, streams, springs of hot water, swimming pools, tanks, water piping networks, cooling tower and conditioning systems (Khaledi et al., 2018). This bacterium causes sporadic and epidemic cases of community-acquired pneumonia (CAP) in healthy and immunocompromised from hospital or community settings (Bagheri et al., 2021).