

and Madaba for the ages 2–3 years and 3–4 years was as follows: Penicillin (90.9%; 81.3%) for Irbid, and (91.1%; 89.7%) for Madaba; clarithromycin (72.7%; 81.3%) for Irbid and (64.4%, 75.9%) for Madaba; trimethoprim-sulfamethoxazole (100%; 100%) for Irbid and (100%, 93.1%) for Madaba. Multiresistance in Irbid and Madaba was 78.9% and 68.9% respectively. 81 isolates were macrolide resistant in both cities, where 48.3% and 51.7% were M-phenotype and cMLS_B for Irbid and 42.3% and 55.8% for Madaba, respectively. Predominant serotypes were 19F (18.8%) and 23F (11.6%) in both cities.

Conclusion: There was high carriage of pneumococci in both cities. The resistance has reached an alarming rate for penicillin and trimethoprim-sulfamethoxazole in both cities. Localizing specific serotypes among specific areas is recommended for better control with the available PCVs.

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20.023

Clinical and microbiological aspects of gonorrhoea in a regional teaching hospital in Taiwan



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Purpose: Gonorrhoea, estimated 78 million people infected globally each year, was increasing in antimicrobial resistance. The global surveillance programme reported resistance rate to different antibiotics including ciprofloxacin (97%), azithromycin (81%), and cefixime and/or ceftriaxone (66%) from 2009 to 2014. Taiwan CDC reported over 4,000 cases each year and high resistance rate to ciprofloxacin (95%). An intramuscular injection of ceftriaxone was the first-choice therapy for uncomplicated infection. The aim of this retrospective study was to analyze the clinical and microbiological aspects of gonorrhoea.

Methods & Materials: The data was from the records of medical charts and microbiology laboratory at Jen-Ai Hospital - Dali, a 602-bed regional teaching hospital in central Taiwan. This study enrolled patients with positive cultures for *Neisseria gonorrhoeae* from 1 January 2016 to 30 June 2018. The following information was collected: age, gender, clinical presentations, concurrent sexually transmitted diseases, specimens, antimicrobial susceptibility testing results, and antibiotic treatment.

Results: Most of 40 positive-culture specimens were urethral discharges from men, and one was vaginal discharge. The median age was 28 years (range: 16–56). The clinical manifestations of infected men were urethral discharge and dysuria, and only one person had scrotal pain. The woman had lower abdominal pain and fever. Two men had syphilis and one had HIV infection. The susceptibility rates of ciprofloxacin and extended-spectrum cephalosporins were 0% and 100% separately. One third of patients received azithromycin and another one third received minocycline together with ceftriaxone.

Conclusion: *Neisseria gonorrhoeae* was highly resistant to ciprofloxacin, but still quite susceptible to ceftriaxone. A small proportion of patients with gonorrhoea had concurrent sexually transmitted diseases.

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20.025

Assessment of multidrug resistant bacteria removal after environmental ozone treatment



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Purpose: Ozone (O₃) is a powerful antimicrobial substance that could be used to disinfect human and veterinary hospitals and outpatient clinics, where multidrug resistant (MDR) bacteria represent a concern. The aim of this study was to assess the efficacy of an air O₃ treatment against MDR bacteria derived from pets.

Methods & Materials: MDR *Staphylococcus pseudintermedius*, *Enterococcus faecium* and *Enterobacter hormaechei*, isolated from infected pets, were used to perform decimal serial dilutions plated on Nutrient Agar plates (OXOID) (Total Plate Count). Two sets of plates inoculated with the same dilution were placed in two identical laboratories (18 m² and 54 m³ each one). In lab 1 the plates were exposed to the air (negative control), in lab 2 to the air treated with O₃ using the Sany Water Plus device (Sanity System). After the exposure, the plates were incubated at 37 °C for 24 hours. The experiment was conducted in triplicate for each strain.

The bacterial removal (%) was calculated as the difference between the negative control count (100%) and the count after O₃ exposure.

Results: O₃ reached a concentration of 1.09 ppm. The *S. pseudintermedius* removal was 98.6%, 91.8% and 99.5% in the 3 experimental repetitions with an average of 96.6%; the *E. faecium* removal was 98.5%, 99.5% and 99.9% with an average of 99.3% and the *E. hormaechei* removal was of 49.2%, 66.7% and 86% with an average of 67.3%.

Conclusion: The effectiveness of the O₃ treatment was assessed on two MDR gram-positive bacteria (*S. pseudintermedius* and *E. faecium*) and on a MDR gram-negative strain (*E. hormaechei*). The results showed a strong drop of the bacterial concentration with differences attributable to variations in the cell wall structures between Gram-positive and Gram-negative bacteria and to the particular features of resistance of *E. hormaechei*.

The use of O₃ for environmental sanitization can therefore represent a valid aid to strengthen the effects of the common sanitization and disinfection procedures, considering its ability to act on fine dust and on surfaces that are difficult to reach and considering that MDR is often associated with resistance to disinfectants.

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20.027

Multidrug resistant (MDR) *Acinetobacter baumannii*: rate of occurrence from a tertiary hospital, Malaysia



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Purpose: *Acinetobacter baumannii* (Ab) is a rapidly emerging nosocomial pathogen. In the last few decades, Ab has been documented not only as an important nosocomial pathogen, but to harbor multidrug resistance (MDR) properties. The ability of Ab