



International Journal of Medical and All Body Health Research



International Journal of Medical and all body Health Research

ISSN: 2582-8940

Received: 20-06-2021; Accepted: 06-07-2021

www.allmedicaljournal.com

Volume 2; Issue 3; July-September 2021; Page No. 05-07

Effectiveness of an outbreak of *Acinetobacter baumannii* contamination in a tertiary consideration consumes unit

Akbar Masood

Lecturer, Plastic Surgery, Government Medical College, Jammu, Jammu and Kashmir, India

Corresponding Author: Akbar Masood

Abstract

Acinetobacter baumannii has become a prominent and troubling microbe in the emergency clinics world over, and nosocomial episodes in the serious consideration units and the consume units have been accounted for. It presents high dismalness and mortality at medical clinics all through the world. The *Acinetobacter Baumannii-calcoaceticus* complex is answerable for the greater part of these contaminations, fundamentally the multidrug-safe strain. It represents 1-3% of clinic contaminations and transcendently influences resistant bargained patients. Consume wounds give great recess to microorganisms to abide. Patients with consume injury are at a high danger of disease because of the idea of the consume injury and the immuno-traded off status alongside delayed clinic stay and intrusive indicative techniques and treatment systems. These episodes are generally brought about by MDRAB which present more prominent dangers in weak patients. In the period of March 2020, four patients in the consume unit at the same time began having fever with chills. Blood culture, wound swab

culture and Urine societies were sent. Then, every one of these patients were begun observationally on infusion Tigecycline, Netilmicin and Vancomycin alongside antipyretics. They were kept on severe vitals, input-yield observing. They were additionally managed fatty high protein diet. Every day dressings were finished with sterile dressing and paraffin covered tullegrass bandage, following hand cleanliness and individual cleanliness measures. Multi Drug Resistant microbes are very much perceived for causing most significant current general medical conditions and a flare-up happens because of failures on part of both patient and managerial side. Here the flare-up seemed, by all accounts, to be started from Dressings plate, ward entryways and hands which was affirmed by comparable affectability designs on culture media. The examination likewise showed that legitimate execution of hand cleanliness strategies, sterilization of ward and more number of dressings diminished the occurrence of microorganisms accordingly managing the flare-up.

Keywords: *Acinetobacter baumannii* contamination, calcoaceticus

1. Introduction

Acinetobacter baumannii has gotten an eminent and troubling microbe in the emergency clinics world over, and nosocomial flare-ups in the escalated care units and the consume units have been accounted for ^[1, 2]. It presents high horribleness what's more, mortality at Hospitals Throughout the world ^[3]. The *Acinetobacter Baumannii-calcoaceticus* complex is answerable for a large portion of these diseases, basically the multidrug-safe strain ^[4]. It represents 1-3% of clinic contaminations and overwhelmingly influences insusceptible bargained patients ^[2].

In people, *Acinetobacter* species stay as ordinary skin vegetation incidentally refined from clammy skin of sound people where as in hospitalized patients it is seen to colonize in respiratory lots and gut of the patients. It can be handily sent accordingly staying feasible in emergency clinic arrangements for long due to multi-drug opposition, capacity to stand up to parching and restricting to lifeless surfaces which is the fundamental driver of an episode ^[5]. Patients can likewise get diseases from clinical types of gear, for example, intravenous lines, catheters, endotracheal tubes, ventilators, Trolleys, food supplies at the medical clinic or even the medical care suppliers ^[6]. Consume wounds give ideal nook to organisms to stay. Patients with consume injury are at a high hazard of contamination because of the idea of the consume injury also, the immuno-bargained status alongside delayed clinic stay and intrusive analytic techniques and treatment techniques ^[7]. These flare-ups are generally brought about by MDRAB which present more noteworthy dangers in weak patients. The Infectious Diseases Society of America (IDSA) recognized *A. Baumannii* among the best seven microbes undermining our medical services conveyance framework and as a prime illustration of neglected clinical need ^[8]. We present a flare-up of MDR *A. Baumannii* which was overseen Successfully in the Burns unit of Government Medical College Hospital, Jammu in the period of March 2020.

Material and Methods

The Burns unit in our medical clinic contains 12 beds, organized equidistantly in 2 work spaces (6 beds in every desk area). The recently conceded patients are overseen in the first work area. After the underlying revival and adjustment, they are moved to the subsequent work area. On a normal, the consume ward gets 12 patients in a month. The consume ward likewise has focal ventilation with programmed indoor temperature change. The patients with consume wounds are exposed to all gauge examinations, for example, complete blood tallies, renal capacity tests, liver capacity tests, blood gathering, chest X-beam, ECG what's more, twisted culture and affectability. Patients are revived with IV liquids according to the Parkland recipe, alongside analgesics, stomach settling agents and anti-toxins.

Consume wound swabs which were sent for Culture affectability answering to the microbiology office were prepared as per standard microbiological strategies. MDRAB was characterized as *A. baumannii* impervious to at least three antimicrobials of the accompanying: aminoglycoside, β -lactam- β -lactamase inhibitor, antipseudomonal carbapenem, antipseudomonal cephalosporin, and fluoroquinolone [9].

Sterile swabs dampened with sterile refined water were used to clean things in the consume ward, such as changing area streetcar, transport streetcar, patient's beds, silver sulfadiazine treatment, water taps and so forth Testing from the hands of wellbeing care laborers (HCWs), including consume dressers, specialists, attendants, were likewise done to evaluate the capability of hand carriage. They were quickly immunized onto 5% sheep blood agar plates and in BHI stock and brooded for the time being in air at 37°C. Microorganisms were distinguished by ordinary strategies and were tried for defenselessness to Ampicillin/Amoxycillin, Amoxy clavulanic corrosive, Piperacillin-tazobactam, Cefotaxime/Ceftriaxone, Cefepime, Imipenem/Meropenem, Amikacin, Gentamycin, Ciprofloxacin/Levofloxacin, Cotrimoxazole, Tetracycline// Minocycline utilizing Kirby Bauer circle dispersion technique as indicated by CLSI rules [10].

Outbreak description

In the long stretch of March 2020, four patients in the consume unit all the while began having fever with chills. Blood culture, wound swab culture and Urine societies were sent. In the mean-time, every one of these patients were begun exactly on infusion Tigecycline, Netilmicin and Vancomycin along with antipyretics. Additionally, these four patients were disconnected from other copy patients. They were kept on exacting vitals, input-yield observing. They were moreover regulated fatty high protein diet. Day by day dressings were finished with sterile dressing and paraffin covered tulle grass dressing, following hand cleanliness and individual cleanliness measures. Notwithstanding, interview from different offices like ENT, obstetrics and Gynecology, Orthopedics, Neurosurgery divisions were additionally done according to necessity and their guidelines followed and treatment alterations whenever required.

Patients were then followed up for their goals of indications like fever and wound wellbeing. It was seen that the patients who were put on tigecycline and netilmicin showed no spike in internal heat level from the exceptionally next day too their injury wellbeing improved. Wound swab societies which were sent from the patients conceded under Burn unit showed

development of MDRAB impervious to Piperacillin+ Tazobactam, levofloxacin, minocycline, cephalosporins, cotrimoxazole, Meropenem. Culture reports from microbiology office showed that *Acinetobacter Baumannii* was secluded from every one of the 4 patients. The species presence were additionally affirmed by different biochemical tests, for example,

1. Gram staining: gram negative cocci which were arranged in pairs and few in chains
2. Oxidase: negative
3. Showed growth at 42°C
4. Oxidative fermentation glucose test: showing oxidative pattern
5. Ferments 10% lactose
6. Non-motile
7. Negative for indole and urease test

The isolates were MDRAB showing resistance to ceftriaxone, cefotaxime, ciprofloxacin, Piperacillin, tazobactam but showed sensitivity to amikacin, gentamicin and tigecycline. The isolates were obtained mainly from bed handles, dressing trays and doors. However the samples taken from nursing staff, doctors on duty and dresser tested negative for the same. The Infection Control Committee of the hospital was informed and was asked to appropriate measures. The sanitation department set up a strategy which spanned over 2 weeks and included measures such as training of health Care worker about possible measures such as hand hygiene, aseptic prevention, personal protection, proper biomedical waste management according to standard protocols [11]. Soap dispensers were put up in ward and washrooms. Restricted movements of staff and the attendants to the ward were done and if done then proper shoe covers and head covers made to put so as to avoid cross contamination of the wound. Dressers in burn unit were made to change gloves, wear masks, gowns and wash hands before and after dressing of each patient. All bandages were autoclaved properly and kept safely in sterile containers and never in open. Number of Dressings of patients with burn surface area more than 30 % were increased. Doctors, nurses and dressers room were disinfected as per standard protocol every day. In case of discharge or any death of the patient the area was cleaned throughout with disinfectants. Bed sheets were changed every day. Environment cleaning and disinfection was increased 3 times a day. Rational use of antibiotics was practised. Ensuing precautions the case-load decreased to 3 cases in month of April and 1 case in May 2020. Samples from beds, trolleys so forth showed negative cultures for *Acinetobacter baumannii*. We were Successful in treating all four burn patients and they were subsequently discharged after the wounds healed. Discussion Multi Drug Resistant bacteria are well recognised for causing most important current public health problems and an outbreak occurs due to lapses on part of both patient and administrative side. Here the outbreak appeared to be initiated from Dressings trays, ward doors and hands which was confirmed by similar sensitivity patterns on culture media. The study also showed that proper implementation of hand hygiene methods, disinfection of ward and more number of dressings decreased the incidence of bacteria thus bringing the outbreak under control. However, the control of MDRAB still proves to be a major task in immunologically compromised burn patients. Hence isolation of patient, contact precaution, education of staff and attendants is very important. To

conclude, environment factor play an important role in causing outbreak of potentially life threatening MDRAB infection and can be controlled with early detection with strong clinical suspicion, backed by evidence based management. Most importantly, maintaining proper hygiene, sanitation and proper sterilization of the environment holds the key to a successful outcome.

References

1. Huang L, Sun L, Xu G, Xia T. Differential susceptibility to carbapenems due to the AdeABCefflux pump among nosocomial outbreak isolates of *Acinetobacter baumannii* in a Chinese hospital. *Diagnostic Microbiology and Infectious Disease*, 2008;62(3):326-32.
2. Wong TH, Tan BH, Ling ML, Song C. Multi-resistant *Acinetobacter baumannii* on a burns unit—clinical risk factors and prognosis. *Burns*, 2002;28(4):349-57.
3. Nomanpour B, Ghodousi A, Babaei A, Abtahi H, Tabrizi M, Feizabadi M. Rapid, cost-effective, sensitive and quantitative detection of *Acinetobacter baumannii* from pneumonia patients. *Iran J Microbiol*, 2011;3(4):162-9.
4. Munoz-Price LS. *Acinetobacter* Infection. *The New England Journal of Medicine* 2008, 11.
5. Ramakrishnan Km, Ramachandran B, Ravikumar K, Ravikumar K, Putli S, Jayaraman V, et al. Management of *Acinetobacter baumannii* infection of burn wound with the evidence of sepsis. *Indian J Burns*, 2019;27(1):30.
6. Hartstein AI, Rashad AL, Liebler JM, Actis LA, Freeman J, Rourke JW, et al. Multiple intensive care unit outbreak of *Acinetobacter calcoaceticus* subspecies anitratus respiratory infection and colonization associated with contaminated, reusable ventilator circuits and resuscitation bags. *The American Journal of Medicine*, 1988;85(5):624-31.
7. Sheng W-H, Liao C-H, Lauderdale T-L, Ko W-C, Chen Y-S, Liu J-W et al. A multicenter study of risk factors and outcome of hospitalized patients with infections due to carbapenem-resistant *Acinetobacter baumannii*. *International Journal of Infectious Diseases*, 2010;14(9):e764-9.
8. D'Agata EMC, Thayer V, Schaffner W. An Outbreak of *Acinetobacter baumannii*: The Importance of CrossTransmission. *Infect Control Hosp Epidemiol*, 2000;21(9):588-91.
9. WHO, "Multidrug-resistant *Acinetobacter baumannii* (MDRAB)," Fact Sheet 1, World Health Organisation, Metro Manila, Philippines, 2010.
10. Clinical and Laboratory Standards Institute, "Performance standards for antimicrobial susceptibility testing," TwentyThird Informational Supplement M100-S23, 2013.
11. Tekin R, Dal T, Bozkurt F, Deveci Ö, Palanc Y, Arslan E et al. Risk Factors for Nosocomial Burn Wound Infection Caused by Multidrug Resistant *Acinetobacter baumannii*: *Journal of Burn Care & Research*, 2014;35(1):e73-80.