LETTER TO EDITOR

Emerging Antimicrobial Resistance Among Methicillin Resistant Staphylococcus Aureus (MRSA) in a Tertiary Care Centre in North India

Dear Editor

Apropos to the article by Dr Bali, titled "Mupirocin resistance in clinical isolates of methicillin-sensitive and resistant Staphylococcus aureus in a tertiary care centre of North India"[1], the authors have raised important issue of emerging antimicrobial resistance (AMR). Antimicrobial resistanceis an increasingly serious threat to global public health that requires action across all government sectors and society. As per WHO, AMR lurks the effective prevention and management of an ever-increasing spectrum of infections caused by bacteria, parasites, fungi and viruses. Novel resistance mechanisms are emerging and spreading globally, threatening the man's ability to treat common infectious diseases.

From the beginning of 2020, the world has been battling an unprecedented and bizarre epidemic of coronavirus disease (COVID-19) caused by a novel coronavirus known as severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). Data from China and other adversely affected countries suggest that people with underlying comorbidities like old age, diabetes, hypertension and cardiovascular disease have adverse outcomes with COVID-19 infection compared to younger people without comorbidities. The high occurrence of diabetes throughout the world makes this particularly worrying as the COVID-19 pandemic progresses. While people with diabetes have a similar risk of catching COVID-19 infection as people without diabetes, the former have an increased risk of severe complications including Adult Respiratory Distress Syndrome (ARDS), multi-organ failure, and death. It has also been observed that COVID-19 is associated with hyperglycaemia (high blood sugar levels) particularly in the elderly with type 2 diabetes whereas septic course is seen in around 20% of the patients. In general, people with all forms of diabetes are at increased risk of infection because of defects in innate immunity affecting phagocytosis, neutrophil chemotaxis, and cell-mediated immunity, and hence at increased incidence and severity of COVID-19 infection. Diabetes is a key risk factor for the development of severe pneumonia and sepsis due to coronavirus infection, occurring in around one-fifth of patients with COVID-19. The association between diabetes mellitus and susceptibility to infections remains tenuous. While immunologic research has documented several defects in host immune mechanisms in diabetics that would seem to put them at a higher risk of infection, the data supporting a higher risk for many infections in diabetics are inadequate. Apart from hyperglycaemia and other metabolic disturbances, various complications of diabetes like diabetic neuropathy and vascular insufficiency can predispose diabetic patients to infections.

The infections affect all organs and systems, however; skin and soft tissue infections are important causes of morbidity and even mortality in people with diabetes mellitus. In the face of AMR, outcome of such infections is increasingly becoming a matter of concern. A few decades back, we did a study on pattern of soft tissue infection in people with diabetes at our institute, wherein we showed that methicillin and aminoglycoside resistant staphylococcus aureus

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(MARSA) was the commonest organism found in our diabetic patients with soft tissue infection[2]. Of concern was that the organism was resistant to most of the available antimicrobials that time, the least resistancebeing against ciprofloxacin. Of course, we didn't test sensitivity against mupirocin as it was not available that time. Nevertheless, it underscores the importance of dealing with staphylococcal infections among Kashmiri population especiallythose with diabetes in whom infection is the commonest cause of in-hospital mortality[3,4]. Understandably, the cost of health care for patients with resistant infections is higher than care for patients with non-resistant infections due to longer duration of illness, additional tests and use of more expensive drugs. Therefore, it is indeed important to have surveillance continuallyfor reserved category antimicrobial agents including those that are the last resort in the pipeline.

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