Health-Related Quality of Life after Intensive Care Unit Discharge: A Comparison between 2 Standard Antibiotic Regimens

To the Editor—Intensive care units (ICUs) can be an important source for creating and disseminating resistance to antibiotics, which is considered an important variable related to patient mortality and overall resource use in the ICU setting.[1,2] Possible lines of evidence to link rates of antimicrobial usage in hospitals and rates of antimicrobial resistance in hospital bacteria were proposed by McGowan.[3] Subsequently, a significant amount of research was carried out in an attempt to explore the relationship between antibiotic use and acquisition of methicillin-resistant *Staphylococcus aureus* (MRSA).[4-6] Given the fact that the risk of MRSA acquisition is thought to be modulated by the use of particular antimicrobial therapies,[4-6] a comprehensive investigation was undertaken with the aim of evaluating the impact of using either ciprofloxacin or tazocin (piperacillin plus tazobactam) on the incidence of MRSA infection in an ICU.[7] To supplement the findings of this published work and to consider the impact of infection on health-related quality of life of hospitalized patients after discharge, patients were assessed using the EQ-5D questionnaire. This questionnaire is a generic instrument developed by the EuroQol Group that is designed to be used for the evaluation of different healthcare interventions.[8,9] It provides a simple descriptive profile (the EQ-5D self-classification of health problems according to a 5-dimensional classification) and a single index value for health status (the EQ-VAS [visual analogue scale], on which patients rate their current overall health status on a 100-point scale, with 0 being the worst imaginable health status and 100 being the best imaginable status).

The purpose of administering the EQ-5D questionnaire was to see whether the patient's postdischarge quality of life differed following the use of either of the 2 treatment regimens. The study was carried out within the 8-bed ICU at Antrim Area Hospital, a 426-bed general teaching hospital in Northern Ireland. Ethical approval was obtained (record reference 05/NIR02/190). The study ran from April 2006 to March 2007, with ICU antibiotic usage policy modified as follows for all patients in the ICU. From April to September 2006, patients requiring broad-spectrum antibiotic therapy received ciprofloxacin (generally 400 mg intravenously every 12 hours), amoxicillin, and metronidazole. Metronidazole was added to the ciprofloxacin plus amoxicillin regimen if anaerobic infection was suspected. From October 2006 to March 2007, patients requiring broad-spectrum antibiotic therapy received tazocin (4.5 g intravenously every 8 hours). Health-related quality of life was assessed using the EQ-5D questionnaire. Patients who had consented to participate had questionnaires mailed to them 6–8 weeks following their hospital discharge. The Student *t* test was used to compare variables (SPSS for Windows, version 15).

Relevant characteristics for the recruited patients in both periods of the study were described in our previous study.[7] These characteristics included age, sex, previous location, type of ICU admission (ie, medical emergency or surgical emergency), primary diagnosis, length of stay, and Acute Physiology and Chronic Health Evaluation II score (APACHE II). No significant differences were noted in the patient characteristics between the 2 time periods.[7] Of 54 patients recruited during the ciprofloxacin period and 53 patients recruited during the tazocin period, 24 (44%) and 23 (43%), respectively, completed questionnaires. The results of the analysis of the questionnaires are shown in the Table. The patients who received ciprofloxacin and those who received tazocin had approximately similar mean EQ-5D scores after hospital discharge (mean ± standard deviation, 0.50 ± 0.35 vs 0.54 ± 0.31), with a slightly higher score for the latter group. This difference between the two groups of patients was not significant ($P = .669$). Regarding EQ-VAS values, the patients who received tazocin had higher mean values, compared with those of patients who received ciprofloxacin (mean ± standard deviation, 65.40 ± 18.67 vs 56.00 ± 16.67). A trend toward significance was observed in the EQ-VAS scores ($P = .075$).

The findings of this research highlight the value of documenting the long-term health-related quality of life of critically ill patients after they receive treatment with different regimens. Although a trend toward significance was observed after patients had received treatment with tazocin, such findings should be interpreted with caution because the sample size was small. Further studies with a larger sample size are needed to assess health-related quality of life status for patients who have been treated with ciprofloxacin or tazocin.

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Searching Many Guidelines for How Best to Control Methicillin-Resistant *Staphylococcus aureus* Healthcare-Associated Spread and Infection

To the Editor—Controversy has persisted for decades over whether proactive measures are required to control methicillin-resistant *Staphylococcus aureus* (MRSA) healthcare-associated spread and infection, and, if so, which measures.

As MRSA healthcare-associated infections (HAIs) escalated 32-fold over the past 3 decades in hospitals that are a part of the Centers for Disease Control and Prevention (CDC) National Nosocomial Infections Surveillance (NNIS) system, MRSA guidelines proliferated, but the details of those guidelines often differed. Which guideline should an infection control practitioner now follow?

We recommend the 2003 Society for Healthcare Epidemiology of America (SHEA) guideline[1] for reasons such as these:

1. Antibiotic use throughout the healthcare system provides a selective advantage for antibiotic-resistant microorganisms like MRSA.

2. Patients coming into contact with contaminated hands, clothing, medical equipment, and/or environmental surfaces provide a means of transmission throughout the healthcare system.

3. Because all healthcare facilities contribute to this problem, all must routinely prevent the spread of MRSA for optimal results throughout the healthcare system.

4. Over 160 studies have reported that active detection and isolation (ADI) effectively halts the spread of antibiotic-resistant microorganisms such as MRSA or vancomycin-resistant *Enterococcus* (VRE), and 14 cost-effectiveness studies found savings.[2]

5. After ADI kept rates of HAI very low at the University of Virginia for a decade, MRSA HAI rates began to rise—not because of a change in infection control measures but because of increasingly frequent admissions of patients colonized elsewhere in the healthcare system, usually in small, lower-risk facilities.[3]

6. A similar pattern has been reported elsewhere (ie, a decade of infection control with ADI followed by increasingly higher rates of HAI due to the increasingly more frequent admission of patients colonized with healthcare-associated strains of MRSA).[4]

7. When the University of Virginia began testing all nonisolated, transferred patients, increasing rates of unrecognized MRSA and VRE colonization were documented among surrounding healthcare facilities—mostly small hospitals and nursing homes.[5]

8. A medium-sized hospital began using ADI and maintained lower rates of unrecognized and unisolated MRSA-colonized patients than did the surrounding, generally smaller healthcare facilities.[5]

9. Others have suggested that optimal control of antibiotic-resistant microorganisms will require effective infection control measures exerted throughout the healthcare system, not just in healthcare facilities with the highest rates of HAI.[6]

10. Guidelines (eg, CDC isolation guidelines in 1983 and 1996 and UK MRSA guidelines in 1986 and 1990) that did not recommend routine ADI to find and control the full reservoir failed to achieve infection control.

11. A guideline recommending ADI only among patients at higher risk of infection and for whom MRSA was already known to be present also failed to achieve infection control (1998 UK MRSA guideline). There was no recommendation to find and control the full reservoir for spread.

12. Multiple northern European nations and the state of Western Australia, which recommend routine ADI in all healthcare facilities to find and control the full reservoir, have managed for decades to keep the rate of MRSA HAI exceedingly low.

13. The most bewildering guideline was a CDC guideline published electronically on October 18, 2006, offering 87 different options in 2 tiers. It argued against the 2003 SHEA guideline's emphasis on ADI but then seemed to contradict itself by making option V.B.6.a.i in the second tier its only category 1A infection control measure: "Implement Contact Precautions routinely for all patients col-