Abstract

Frequent, suboptimal use of antimicrobial drugs has resulted in the emergence of microbial resistance, compromised clinical outcomes and increased costs, particularly in the intensive care unit (ICU). Mounting on these challenges is the paucity of new antimicrobial agents. Objectives: The study aims to determine the impact of prospective pharmacy-driven antimicrobial stewardship in the ICU on clinical and potential financial outcomes. The primary objectives were to determine the mean length of stay (LOS) and mortality rate in the ICU resulting from prospective pharmacy interventions on antimicrobial therapy. The secondary objective was to calculate the difference in total drug acquisition costs resulting from pharmacy infectious diseases (ID)-related interventions. Methods: In collaboration with an infectious disease physician, the ICU pharmacy team provided prospective audit with feedback to physicians on antimicrobial therapies of 70 patients over a 4-month period in a 31-bed ICU. In comparison with published data, LOS and mortality of pharmacy-monitored ICU patients were recorded. Daily cost savings on antimicrobial drugs and charges for medication therapy management (MTM) services were added to calculate potential total cost savings. Pharmacy interventions focused on streamlining, dose optimization, intravenous-to-oral conversion, antimicrobial discontinuation, new recommendation and drug information consult. Antimicrobial education was featured in oral presentations and electronic newsletters for pharmacists and clinicians. Results: The mean LOS in the ICU was 6 days, which was lower than the published reports of LOS ranging from 11 to 36 days. The mortality rate of 14% was comparable to the reported range of 6 to 20% in published literature. The total drug cost difference was a negative financial outcome or loss of USD192 associated with ID-related interventions. Conclusion: In collaboration with the infectious disease physician, prospective pharmacy intervention on antimicrobial therapy in the ICU led to positive clinical outcomes and an additional drug cost expense of USD192.

Keywords

Anti-Infective Agents, Intensive Care, Pharmacy Service, Hospital, Cost-Benefit Analysis, United States.