THE ROLE OF ELECTRONIC MEDICAL RECORD IN ENHANCING RATIONAL ANTIBIOTICS PRESCRIPTION: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Antimicrobial resistance is a big problem in the world. Inappropriate use of antibiotics increases up to 36-54% in hospitals worldwide. One of the factors that trigger antimicrobial resistance is the prescription of irrational antibiotics. In the age of increasingly developing technology, a variety of medical equipment and support also developed, including electronic medical record (EMR). This study aimed to systematically review the role of the electronic medical record in enhancing rational antibiotics prescription.

Subjects and Methods: This was a systematic review using articles obtained from 4 electronic databases, namely Proquest, EBSCO, PubMed, and Scopus. The keywords used in this study were "electronic medical record" OR "electronic health record" OR "electronic patient data" AND "hospital" AND "rational antibiotic prescribing" OR "rational antimicrobial prescribing" OR "improve antibiotic prescribing" OR "antibiotic resistance" OR "antimicrobial resistance". The data were obtained from publication in 2014 to 2019, observational study, conducted in hospital, and related to EMR. The main outcome was the change in prescription from irrational to rational use of antibiotics. The data were reviewed based on the PRISMA flow diagram.

Results: Eight of 5549 articles met the inclusion criteria and were reviewed. Four of 8 articles discussed additional information technology (IT) tools that were technologically linked to EMR. One article discussed government regulation. Two articles discussed hospital system. One articles discussed collaboration between EMR data and educational promotion. EMR provided complete information about the patient's condition, history of the disease, the pattern of therapy administration, and the cost of treatment in the hospital. However, EMR itself was not enough. Program support, additional IT system, and regulation, were needed to change the behavior of rational antibiotic prescription.

Conclusion: EMR can provide an overview of the medical record data, including patterns of antibiotics drug use. It helps the doctors to provide rational therapy easier by increase regulation, hospital system, or additional tools that support EMR in the case to reduce antimicrobial resistance.

Keywords: electronic medical record, antimicrobial resistance, improve antibiotic prescribing, hospital

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