

The computer reminder system to advise the proper antibiotics dosage for the inpatients with liver / kidney failure

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Foreword

The drug dosage not prescribed in line with the liver/kidney function contributes to adverse drug reactions, ADRs. Due to the vast number of medications in clinical practice, when a certain antibiotic is prescribed to an inpatient, if the renal function fails to be taken into account or the physician is unsure of the prescribed antibiotic dosage that is appropriate to the renal function levels, the inappropriate prescription will happen. The literature review indicates that failure to adjust medication dosages in patients with renal impairment can lead to patient harm and increased utilization of healthcare resources.

Methods

When physicians prescribe antibiotics, the system proactively detects patient parameters such as height, weight, and creatinine levels to calculate the patient's renal function. Based on the renal function, the system provides dosage and frequency prompts for pediatric and adult antibiotic prescriptions, reducing the probability of prescribing errors. Additionally, a pharmacist review interface is implemented with prompts for liver and kidney function-related medication adjustments. When reviewing prescriptions for hospitalized patients with impaired liver or kidney function, the system alerts pharmacists regarding the correctness of the medication dosage and frequency, thereby reducing review time and enhancing efficiency. For newly appointed pharmacists, the prompt system assists in quickly identifying medications that require adjustment and improves familiarity with different medications.

Results

After the implementation of the liver and kidney function prompt system, the average number of antibiotic-related doubtful prescriptions in 2022 was approximately 30 per year, with an acceptance rate of about 70%. Subsequently, with the pharmacist review system established in September 2022, the monthly number of questionable prescriptions for hospitalized patients increased from 8 to 18. The acceptance rate by physicians was 67%, and the average time spent on medication verification was reduced by 30 minutes per day, significantly improving the efficiency of pharmacist review.

Discussion

The computer-assisted system provides medication recommendations to physicians by integrating relevant examination data of hospitalized patients. On the pharmacist side, the system prompts medication-related information, reducing the time spent on medication retrieval and enhancing review efficiency. Through joint efforts, healthcare professionals aim to reduce medication errors, shorten hospital stays, and decrease medication costs, ultimately achieving effective and safe medication use.