ESTIMATED IMPACT ON THE REDUCTION OF HOSPITAL COSTS ASSOCIATED WITH THE IMPLEMENTATION OF A SEQUENTIAL ORAL ANTIMICROBIAL THERAPY PROTOCOL IN A MUNICIPAL HOSPITAL IN RIO DE JANEIRO.

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Introduction

Sequential Oral Antimicrobial Therapy (SOAT) is an effective strategy to reduce healthcare-associated infections (HAIs), while providing various other benefits. The appropriate transition from intravenous antimicrobial therapy to oral therapy through the use of a standardized practice, with active participation from pharmaceutical professionals, has demonstrated the ability to reduce costs associated with the acquisition of antimicrobials and intravenous administration, as well as decrease hospital length of stay, thereby minimizing the use of hospital resources.

Material and Methods

This work is an Experimental Development Project conducted in an emergency and urgent care hospital unit in the municipality of Rio de Janeiro. The project included the creation of a checklist with clinical criteria to determine eligibility for SOAT, these criteria were collected from scientific works obtained from the Google Scholar and Scielo platforms and were then compared with the national consensus of experts from the United Kingdom of 2023; identification of orally standardized antimicrobials in the municipality of Rio de Janeiro from the Municipal List of Essential Medicines and definition of their bioavailability; cost comparison between intravenous and oral therapies, which was conducted using the average cost of medications obtained from the SIGMA platform (Sistema de Gerenciamento de Materiais) of the Rio de Janeiro city hall (January 2024); and finally, to calculate the likely new demand of oral antimicrobials, the average proportion of patients eligible for SOAT (PMP) was used, obtained from scientific articles, along with the Defined Daily Doses (DDD) from the World Health Organization.

Results and Discussion

The checklist was developed with a questionnaire containing 11 questions in which the patient will be eligible if all responses are yes, the questions were: IV antimicrobial therapy for at least 48 hours, oxygen saturation above 92%, white blood cell count between 4.000 and 12.000 cells/µL, ability to eat orally, maintenance of pulse and blood pressure without assistance, reduction of C-reactive protein, and absence of severe infections, gastrointestinal malabsorption symptoms, neutropenia and/or hematological malignancy, tachycardia and/or tachypnea, Fever and/or hypothermia. The recommended therapies for ten infectious conditions considered eligible for SOAT were defined. Of the 22 orally formulated antimicrobials standardized in the municipality, 16 (73%) had bioavailability above 50%, making them eligible for SOAT. All recommended IV therapies were more costly compared to oral therapy, with the cost of intravenous therapy per patient being up to R$815.64 higher than that of oral therapy (table 1), and with up to 90 patients able to be treated orally for the cost of one of the intravenous treatments with the same drug (table 1), the potential financial impact of implementing SOAT is demonstrated. Considering the estimated demand calculated, the future implementation of the protocol could provide savings of over R$16.700 per month in the hospital, considering only the cost associated with pharmaceutical forms.

Table 1- Recommended Antibiotic Therapies and Cost Comparison for Four Infectious Conditions

Infectious Condition	Recommended IV Therapy	Recommended Oral Therapy	Savings of Oral over IV	Proportion of Oral Patients per IV Cost
Bacterial Cystitis	Amoxicillin + Clavulanate (AMC) 500 mg/100 mg every 8 h for 5 to 7 days	AMC 500 mg/125 mg every 8 h for 5 to 7 days	Up to R$211.68 per patient	5.2 patients
Bacterial Pyelonephritis	Ciprofloxacin (CIP) 400 mg every 12 h for 7 to 14 days	CIP 500 mg every 12 h for 7 to 14 days	Up to R$519.12 per patient	93.7 patients
Diabetic Foot Infections	CIP 400 mg every 12 h + Clindamycin (CLI) 600 mg every 6h for 14 to 21 days	CIP 500 mg every 12 h + CLI 600 mg every 6h for 14 to 21 days	Up to R$815.64 per patient	4.30 patients
Bacterial Gastroenteritis	CIP 400 mg every 12 h for 3 to 5 days or Sulfametoxazol + Trimetoprima (SXT) 800/160 mg every 12 h for 3 to 5 days	CIP 500 mg every 12 h for 3 to 5 days or SXT 800/160 mg every 12 h for 3 to 5 days	Up to R$185.60 per patient (CIP) and R$64.60 per patient (SXT)	93.8 patients (CIP) and 18.0 patients (SXT)

Conclusion

The results reveal the feasibility and potential positive financial impact of SOAT, emphasizing the importance of implementing such programs and the fundamental role of pharmacists.

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