

## Abstract

Managing the deregulated host response to infection remains a major challenge in sepsis care. Chinese adding XueBiJing further reduced 28-day mortality via modulating the host response, pharmacokinetic herb–drug interaction is a widely recognized issue that needs to be studied. Building on our earlier systematic chemical and human pharmacokinetic investigations of XueBiJing, we evaluated the degree of pharmacokinetic compatibility for

**Keywords:** XueBiJing, Antibiotics, Compatibility, Sepsis, Pharmacokinetics

## Introduction

Drug–drug interactions (DDIs) are a common clinical problem, and they can lead to adverse effects, reduced efficacy, or increased toxicity. The most common type of DDI is pharmacokinetic (PK) DDI, which occurs when one drug affects the PK of another drug. PK DDI can occur at any stage of drug metabolism, from absorption to excretion. PK DDI can be either synergistic or antagonistic, and it can lead to either increased or decreased drug exposure.

Sepsis is a life-threatening condition caused by a dysregulated host response to infection [1]. Because of the high mortality rate associated with sepsis, it is a major cause of death in the intensive care unit (ICU). The management of sepsis is complex, and it requires a multidisciplinary approach. One of the key components of sepsis management is the use of antibiotics. However, the use of antibiotics in sepsis is often complicated by DDIs. For example, the use of beta-lactam antibiotics in combination with aminoglycosides can lead to increased toxicity. Similarly, the use of beta-lactam antibiotics in combination with vancomycin can lead to increased toxicity. Therefore, it is important to evaluate the degree of PK compatibility between antibiotics and other drugs used in sepsis treatment. XueBiJing (XBJ) is a traditional Chinese medicine (TCM) formula that has been used for the treatment of sepsis for centuries. It is composed of five herbs: *Salvia miltiorrhiza* (Huangqi), *Scutellaria baicalensis* (Huanglian), *Paeonia officinalis* (Choupo), *Lonicera japonica* (Lonicera), and *Asarum canadense* (Daqingye). A recent study (Dai et al., 2022) demonstrated that XBJ

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**Received:** 3-Oct-2022, Manuscript No: jpet-22-87535, **Editor assigned:** 5-Oct-2022, Pre QC No: jpet-22-87535 (PQ), **Reviewed:** 19-Oct-2022, QC No: jpet-22-87535, **Revised:** 24-Oct-2022, Manuscript No: jpet-22-87535, **Published:** 31-Oct-2022, DOI: 10.4172/jpet.1000154

**Citation:** Cheng C (2022) The Five-Herb Medication XueBiJing is highly Pharmacokinetically Compatible with Antibiotics Used in Sepsis Treatment. *J Pharmacokinet Exp Ther* 6: 154.

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