

[Look Up Full Text](#)[Save to EndNote online](#)[Add to Marked List](#)

1 of 1

Beta-Lactam Infusion in Severe Sepsis (BLISS): a prospective, two-centre, open-labelled randomised controlled trial of continuous versus intermittent beta-lactam infusion in critically ill patients with severe sepsis

By: [Abdul-Aziz, MH](#) (Abdul-Aziz, Mohd H.)^[1,2]; [Sulaiman, H](#) (Sulaiman, Helmi)^[3]; [Mat-Nor, MB](#) (Mat-Nor, Mohd-Basri)^[4]; [Rai, V](#) (Rai, Vineya)^[5]; [Wong, KK](#) (Wong, Kang K.)^[5]; [Hasan, MS](#) (Hasan, Mohd S.)^[5]; [Abd Rahman, AN](#) (Abd Rahman, Azrin N.)^[2,6]; [Jamal, JA](#) (Jamal, Janattul A.)^[7]; [Wallis, SC](#) (Wallis, Steven C.)^[1]; [Lipman, J](#) (Lipman, Jeffrey)^[1,8] ...More

[View ResearcherID and ORCID](#)

INTENSIVE CARE MEDICINE

Volume: 42 Issue: 10 Pages: 1535-1545

DOI: 10.1007/s00134-015-4188-0

Published: OCT 2016

[View Journal Information](#)

Abstract

This study aims to determine if continuous infusion (CI) is associated with better clinical and pharmacokinetic/pharmacodynamic (PK/PD) outcomes compared to intermittent bolus (IB) dosing in critically ill patients with severe sepsis.

This was a two-centre randomised controlled trial of CI versus IB dosing of beta-lactam antibiotics, which enrolled critically ill participants with severe sepsis who were not on renal replacement therapy (RRT). The primary outcome was clinical cure at 14 days after antibiotic cessation. Secondary outcomes were PK/PD target attainment, ICU-free days and ventilator-free days at day 28 post-randomisation, 14- and 30-day survival, and time to white cell count normalisation.

A total of 140 participants were enrolled with 70 participants each allocated to CI and IB dosing. CI participants had higher clinical cure rates (56 versus 34 %, $p = 0.011$) and higher median ventilator-free days (22 versus 14 days, $p < 0.043$) than IB participants. PK/PD target attainment rates were higher in the CI arm at 100 % fT (> MIC) than the IB arm on day 1 (97 versus 70 %, $p < 0.001$) and day 3 (97 versus 68 %, $p < 0.001$) post-randomisation. There was no difference in 14-day or 30-day survival between the treatment arms.

In critically ill patients with severe sepsis not receiving RRT, CI demonstrated higher clinical cure rates and had better PK/PD target attainment compared to IB dosing of beta-lactam antibiotics. Continuous beta-lactam infusion may be mostly advantageous for critically ill patients with high levels of illness severity and not receiving RRT.

Malaysian National Research Register ID: NMRR-12-1013-14017.

Keywords

Author Keywords: Antibiotics; Critically ill; Intermittent bolus; Pharmacokinetics; Pharmacodynamics; Prolonged infusion**KeyWords Plus:** CARE-UNIT PATIENTS; CONTINUOUS VENOVENOUS HEMOFILTRATION; DEFINING ANTIBIOTIC LEVELS; INTENSIVE-CARE; CLINICAL-EFFICACY; CEFTAZIDIME; INFECTIONS; PIPERACILLIN; MEROPENEM; CEFEPIME

Author Information

Reprint Address: Abdul-Aziz, MH; Roberts, JA (reprint author)

Univ Queensland, Royal Brisbane & Womens Hosp, Burns Trauma & Crit Care Res Ctr, Level 3, Ned Hanlon Bldg, Herston, Qld 4029, Australia.

Addresses:

[1] Univ Queensland, Royal Brisbane & Womens Hosp, Burns Trauma & Crit Care Res Ctr, Level 3, Ned Hanlon Bldg, Herston, Qld 4029, Australia

[2] Int Islamic Univ Malaysia, Sch Pharm, Kuantan, Pahang, Malaysia

[3] Univ Malaya, Dept Med, Infect Dis Unit, Fac Med, Kuala Lumpur, Malaysia

Citation Network

15 Times Cited

39 Cited References

[View Related Records](#) [View Citation Map](#) [Create Citation Alert](#)*(data from Web of Science™ Core Collection)*

All Times Cited Counts

15 in All Databases

15 in Web of Science Core Collection

6 in BIOSIS Citation Index

0 in Chinese Science Citation Database

0 in Data Citation Index

0 in Russian Science Citation Index

0 in SciELO Citation Index

Usage Count

Last 180 Days: 11

Since 2013: 11

[Learn more](#)

Most Recent Citation

Bao, H. [Clinical outcomes of extended versus intermittent administration of piperacillin/tazobactam for the treatment of hospital-acquired pneumonia: a randomized controlled trial](#). EUROPEAN JOURNAL OF CLINICAL MICROBIOLOGY & INFECTIOUS DISEASES, MAR 2017.

[View All](#)

This record is from:

Web of Science™ Core Collection

Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

[4] Int Islamic Univ Malaysia, Sch Med, Dept Anaesthesiol & Intens Care, Kuantan, Pahang, Malaysia

+ [5] Univ Malaya, Dept Anaesthesiol, Fac Med, Kuala Lumpur, Malaysia

+ [6] Univ Queensland, Sch Pharm, Brisbane, Qld, Australia

[7] Hosp Tengku Ampuan Afzan, Dept Pharm, Kuantan, Malaysia

[8] Royal Brisbane & Womens Hosp, Dept Intens Care Med, Brisbane, Qld, Australia

[9] Australian Ctr Pharmacometr, Brisbane, Qld, Australia

E-mail Addresses: mohd.abdulaziz1@uqconnect.edu.au; j.roberts2@uq.edu.au

Funding

| Funding Agency | Grant Number |
|--|-------------------|
| International Islamic University of Malaysia (IIUM) Research Endowment Grant | EDW B 11-148-0626 |

[View funding text](#)

Publisher

SPRINGER, 233 SPRING ST, NEW YORK, NY 10013 USA

Categories / Classification

Research Areas: General & Internal Medicine

Web of Science Categories: Critical Care Medicine

Document Information

Document Type: Article

Language: English

Accession Number: WOS:000385070400003

PubMed ID: 26754759

ISSN: 0342-4642

eISSN: 1432-1238

Journal Information

Impact Factor: [Journal Citation Reports®](#)

Other Information

IDS Number: DY4LN

Cited References in Web of Science Core Collection: 39

Times Cited in Web of Science Core Collection: 15