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Evaluation of Hemodialysis Effect on Pharmacokinetics of Meropenem/Vaborbactam in End-Stage Renal Disease Patients Using Modeling and Simulation
August 2020 – *The Journal of Clinical Pharmacology* (JCP)

Why is this article important to you?

The objectives of this study were to evaluate the effect of hemodialysis (HD) on the pharmacokinetics (PK) of meropenem/vaborbactam, an approved beta-lactam/beta-lactamase inhibitor combination and provide the rationale for the recommended timing of meropenem/vaborbactam administration relative to HD in end-stage renal disease (ESRD) patients. Population PK models were developed separately for meropenem and vaborbactam in subjects with normal renal function and different degrees of renal impairment, including those receiving HD. Simulations were performed to evaluate the exposure of meropenem and vaborbactam in ESRD patients who received a fixed dose of 0.5 g/0.5 g meropenem/vaborbactam every 12 hours as a 3-hour intravenous infusion under various drug administration schedules relative to HD. The probability of target attainment analyses were conducted with pharmacokinetic/pharmacodynamic targets of meropenem and vaborbactam. Learners that complete this course will be able to understand the role of meropenem/vaborbactam when treating complicated urinary tract infections in patients with ESRD.



Joint Accreditation Statement

In support of improving patient care, the American College of Clinical Pharmacology® (ACCP) is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE) and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

UAN: JA4008220-0000-20-011-H01-P– ACPE 1 Contact Hours

Activity Type: Knowledge-based **Format:** Home-study **Target Audience:** 'P'

ACCME Designation Statement

The Accreditation Council for Continuing Medical Education designates this Journal CE activity for 1 *AMA PRA Category 1™* credit. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Target Audience

Interprofessional team of Physicians, Pharmacists, PhDs, Nurse Practitioners and Physician Assistants.

Learning Objectives

After completing this activity, the learner will be able to:

1. Explain why meropenem/vaborbactam requires dosing adjustments for patients with ESRD and/or requiring HD;
2. Articulate the reasons why clinicians dose some dual combination products when target concentrations are not met;
3. Interpret PK for an antimicrobial drug and explain how this affects its dosing;
4. Interpret AUC data and determine the effect of drug exposure based on the timing and presence of HD in relation to a drug's dosing.

Requirements to Receive Credit

In order to receive continuing education credit, the learner must register for the educational activity, study the provided journal article and complete the online learning Post-event Self-assessment, as well as the online course Evaluation and CME/CPE Certificate. Credits and CME/CPE Certificates must be claimed within thirty (30) days of completing the article, Post-event Self-Assessment and Evaluation. Contact CE@ACCP1.org with any questions.

Disclosures:

Article Selection: Joseph S. Bertino Jr, PharmD, FCP, FCCP, Editor-in-Chief, JCP and Owner, Bertino Consulting Inc. Nothing to disclose.

Planner: Alexander Sperry, MS, School of Pharmacy, Medical Coll of Wisconsin. Nothing to disclose.

CE Reviewer: Jomy M. George, PharmD, Director, Clinical Pharmacokinetics Research Laboratory, National Inst of Health. Nothing to disclose.

Schedule & Fees

JCP monthly Journal CE articles are generally released on the 1st or 2nd Tuesday of each month. They are priced in packages of January to December for each year. Packages are available at no cost to ACCP Members and \$75/calendar year to Non-members. Once you register, you have access to all of the Journal CE articles for the calendar year.

Acknowledgement of Financial Support

No financial support was received for this educational activity.

Home Study Initial Release and Expiration Dates

Date of Issuance: 08/01/2020

Expiration Date: 12/31/2022

Helpful Tips

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