**Background**

Sulopenem is a thiopenem antibiotic being developed for the treatment of uncomplicated urinary tract infections (uUTI). It is highly active against Gram-negative bacteria, including extended-spectrum β-lactamase (ESBL)-positive isolates. The purpose of the present study was to perform an in vitro investigation of the urine minimum bactericidal dilution (MBD) for patient urine samples, against two ESBL-positive clinical isolates of each of E. coli and a single clinical isolate of K. pneumoniae.

**Materials and Methods**

Patients were studied. Urine samples were collected from volunteers, urine was aliquoted, and urine samples were collected from volunteers, who were given sulopenem-etzadroxil in a Phase 1 PK study, and a 5 mL aliquot of each urine sample was collected from volunteers in a Phase 1 study, who were given sulopenem-etzadroxil. Urine samples were cultured and tested for activity against key pathogens. Urine bactericidal titres and MICs were determined per CLSI guidelines (M21-A & M07-A10).

**Conclusions**

Bactericidal activity against all organisms, including the OXA-48 producing organism, was evident in all urine samples tested. Maximum fold-dilution of urine retaining bactericidal activity ranged from 1:2 to 1:1024. The cultures on the day of testing the fasted cultures were diluted to a 1:5 final dilution and then plated bacterially on a 2 µg/mL containing plate containing sulopenem and incubated overnight at room temperature without shaking.

**Implications**

These data support further study on sulopenem for the treatment of uUTI.

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**Antimicrobial Activity of Sulopenem in the Urine of Healthy Volunteers**

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**ABSTRACT**

- Sulopenem is a thiopenem antibiotic being developed for the treatment of infections caused by ESBL-producing bacteria. It is highly active against Gram-negative bacteria, including.esb-4 positive strains.
- In an initial investigation of the urine minimum bactericidal dilution (MBD) for patient urine samples, against two ESBL-positive clinical isolates of each of E. coli and a single clinical isolate of K. pneumoniae.
- The present study was to perform an in vitro investigation of the urine minimum bactericidal dilution (MBD) for patient urine samples, against two ESBL-positive clinical isolates of each of E. coli and a single clinical isolate of K. pneumoniae.

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**RESULTS**

- Bacterial activity against all organisms, including the OXA-48 producing organism, was evident in all urine samples tested indicating potent antimicrobial activity of sulopenem in the urine.
- Sulopenem provided to patients in the fed state was, in most cases, bactericidal at one additional dilution relative to those dosed fasted. These data support further study on sulopenem for the treatment of uUTI.