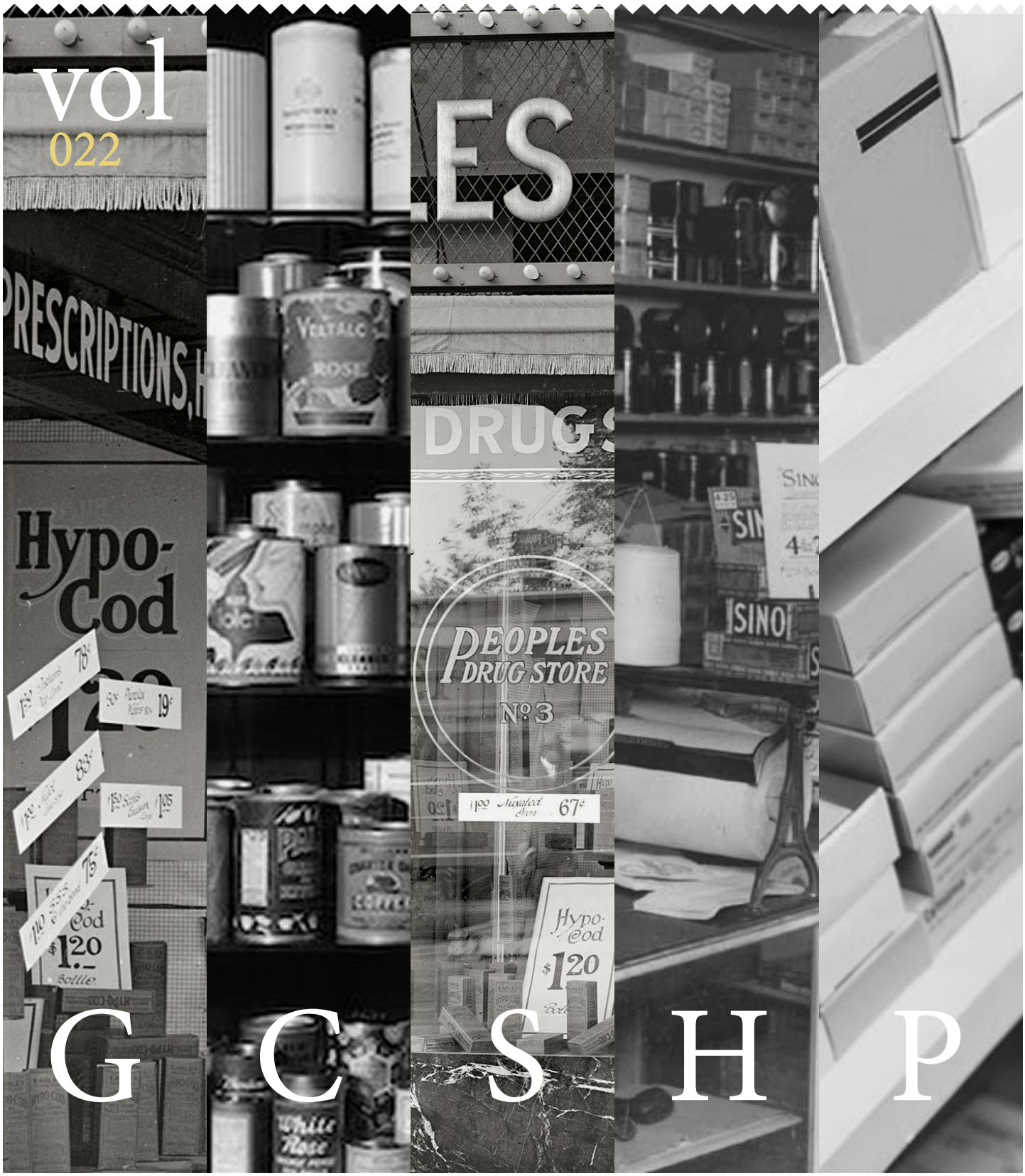
NEWS LETTER / gulf coast society / 2019 fall



GULF COAST SOCIETY OF HEALTH-SYSTEM PHARMACISTS

FALL 2019 NEWSLETTER

HIGHLIGHTS FROM

78 Attended

CASINO NIGHT

AT SAINT ARNOLD BREWING COMPANY

7th ANNUAL EVENT

JULY 18, 2019

FAMILIAR FACES

Members mingling at Casino Night

AWARDS

Ardath Mitchell and Niha Zafar

GCSHP MEMBERS

Carlton Menchaca, Breanna Hinman, Andy Wong, Olivia Kreidler, Sarah Mirjamali, Trung Nguyen

CURRENT BOARD MEMBERS

Alan Luu, Chib Amuneke-Nze, Joseph Rogers, Laura Blackburn, Amanda Beck, Ardath Mitchell, Stella Kim, Jordan Burdine, Jeseli Flores

STUDENTS OF GCSHP

Michael Akwari, Gladys Brown, Volanda Jackson, Jeseli Flores, Patrice Caramouche

OUTSTANDING AWARDS

OUTSTANDING PHARMACIST

IAN E. DUNNE

PHARMD, BCPS
HOUSTON METHODIST - TMC

Ian is being recognized for his outstanding contributions as a health systems pharmacist and for his active participation in the growth of GCSHP and dedication to improving the delivery of quality healthcare.

OUTSTANDING STUDENT

NIHA ZAFAR

UNIVERSITY OF HOUSTON

GCSHP would like to recognize Niha as a passionate student that has demonstrated active participation in GCSHP and an interest in health systems pharmacy practice through research and other activities.

EDUCATION

UPCOMING CONTINUING EDUCATION EVENTS

The **2019-2020 TSHP Mentorship Program** application is now open. Mentoring is a great way to give back to your profession and share your professional expertise & experiences with pharmacy students and new practitioners looking for guidance. Applications close **September 15th**. Apply at: **www.tshp.org/mentorship.**

Neonatal and Pediatrics Conference

Texas Society of Health-Systems Pharmacists

TSHP recognizes the special needs of pharmacy professionals who work with pediatric patients. This conference will provide pediatric specialty education for pharmacy professionals who practice in either a general or pediatric hospital. Attendance is highly encouraged as this is a first-time conference focusing on a unique population in our local area.

When: October 25-27, 2019
Location: JW Marriot Houston (Galleria)
Register at tshp.org/peds

Conference Agenda

FRIDAY, OCTOBER 25, 2019

- Pediatric Primer Workshop . . . . 12:30 PM - 6:00 PM

Additional registration required. See registration form for details.

SATURDAY, OCTOBER 26, 2019

- Registration . . . . . 7:00 AM - 5:00 PM
- Breakfast . . . . . 7:30 AM - 9:00 AM
- Keynote Presentation . . . . . 8:00 AM - 9:00 AM
- Educational Sessions . . . . . 9:00 AM - 11:05 AM
- Lunch with Exhibitors . . . . . 11:15 AM - 1:00 PM
- Educational Sessions . . . . . 1:00 PM - 3:05 PM
- Refreshment Break . . . . . 3:00 PM - 4:00 PM
- Educational Sessions . . . . . 4:00 PM - 5:00 PM
- Reception . . . . . 5:00 PM - 7:30 PM

SUNDAY, OCTOBER 27, 2019

- Registration . . . . . 7:00 AM - 1:00 PM
- Continental Breakfast . . . . . 7:00 AM - 9:00 AM
- Educational Sessions . . . . . 8:00 AM - 11:15 AM
- Lunch with Exhibitors . . . . . 11:15 AM - 1:00 PM
- Texas Children's Hospital Tours . . . 1:00 PM - 4:00 PM

Separate ticketed event. See registration form for details.

NOTE: This is not the full agenda. Please check out the TSHP website for details.

TSHP Annual Seminar

Texas Society of Health-Systems Pharmacists

TSHP's Annual Seminar is the largest educational and networking meeting of pharmacists, students, technicians, and industry professionals in the state of Texas. Pharmacist and technician registrants may select from more than 50 hours of programming. TSHP Annual Seminar programs are designed to maintain and enhance the knowledge, skills, and abilities of pharmacy professionals at healthcare systems and hospitals across Texas.

When: April 17-19, 2020
Location: Moody Gardens® (Galveston, TX)

Registration dates:

Janurary 31: Early bird registration ends

April 1: Advanced online registration ends

April 12-14: On-site registration

SEPT 19, 2019 AT 6:30 PM

Acute Ischemic Stroke (Case Study): Improving Door-to-Needle Times

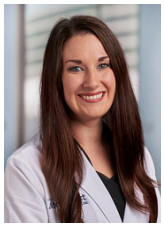
PRESENTED BY Richard Lucarelli, MD

Sponsor	Genentech
Location	McCormick & Schmick's Seafood and Steaks
Address	1201 Fannin Street

NOTE: No CE credit will be given at this presentation.

There will be an upcoming December CE event about oncology.
Keep a lookout for more information!

Interpreting Susceptible-Dose Dependent (SDD) for Ceftaroline and Daptomycin



BY: TARYN EUBANK, PHARM.D.
PGY-1 PHARMACY PRACTICE RESIDENT
Houston Methodist Hospital – TMC
Preceptor: Katherine Perez, PharmD, BCPS–AQ ID

The Clinical and Laboratory Standards Institute (CLSI) is an international, not-for-profit organization that facilitates development and implementation of medical laboratory testing standards. The CLSI Subcommittee on Antimicrobial Susceptibility Testing (AST) sets susceptibility testing breakpoints and interpretive criteria for antimicrobial susceptibility to specific organisms.[1] Within the last few years, the addition of a new interpretive category for antibacterials has been observed alongside S (susceptible), I (intermediate), and R (resistant). Susceptible-dose dependent (SDD) is a breakpoint category that is dependent on achieving the maximum, literature-supported blood levels of an antibacterial. Isolates in this category are expected to have the same clinical response as isolates in the susceptibility category if the correct dosing regimen and/or frequency is used. The introduction of SDD comes at a time when antimicrobial resistance continues to rise and alternative treatment strategies are needed. One major distinction that SDD offers compared with the intermediate category is literature-supported dosing recommendations. An informal survey conducted at the University of Maryland Medical Center reported that 0/30 (0%) internal medicine house personnel would treat an organism reported as intermediate whereas 15/30 (50%) would treat an organism reported as susceptible dose dependent.[2] Antimicrobials that currently fall into this category include fluconazole, cefepime, ceftaroline, and daptomycin. Ceftaroline and daptomycin had MIC breakpoint changes and addition of SDD this past year and will be the focus of this article.

Ceftaroline is a fifth-generation cephalosporin with activity against methicillin-resistant *Staphylococcus aureus (MRSA)*. The FDA-approved adult dose is 600 mg IV every 12 hours. The majority of *S. aureus* isolates in the United States have a ceftaroline MIC < 1 mg/L, falling into the FDA-approved susceptible category. However, reported isolates with MICs between 2-4 mg/L prompted the CLSI to set a new breakpoint categorized as SDD.[1,3] Pharmacokinetic/pharmacodynamic data supports increased dosage regimens of ceftaroline 600 mg IV every 8 hours infused over 2 hours for isolates within this range.[4] A phase III study performed by Dryden et al. found the higher dosing regimen of 600 mg IV every 8 hours was safe and effective in patients with complicated skin and soft tissue infection.[5] *S. aureus* isolates that have a ceftaroline MIC of > 8 are categorized as resistant.[1]

Daptomycin is a cyclic lipopeptide that is FDA-approved for adults with complicated skin and soft tissues infections and *S. aureus* bacteremia (including those with right-sided infective endocarditis) with recommended dosages of 4 or 6 mg/kg IV daily, respectively. Daptomycin also has an important off-label role for treatment of infections due to vancomycin-resistant *Enterococcus faecium*. Recent reports of daptomycin treatment failures with *E. faecium*, established resistance mechanisms, pharmacokinetic/pharmacodynamic modeling for higher dosing strategies, and lack of toxicity signaling with higher doses prompted the CLSI to adopt new interpretive criteria. In a study by Moise et al, FDA-approved dosing indicated for *S. aureus* lead to poorer outcomes in patients with severe infections due to *E. faecium*.[6] In 2017, two studies published in Clinical Infectious Diseases demonstrated lower mortality among patients with vancomycin-resistant *E. faecium* treated with high-dose daptomycin.[7,8] The high-doses reported were >10 mg/kg daily[7] and >9 mg/kg daily.[8] The daptomycin MIC breakpoint for the category SDD has been set as < 4 mg/L for *E. faecium* with a recommended dose of 8-12 mg/kg daily. *E. faecium* isolates with a daptomycin MIC of > 8 are categorized as resistant.[1]

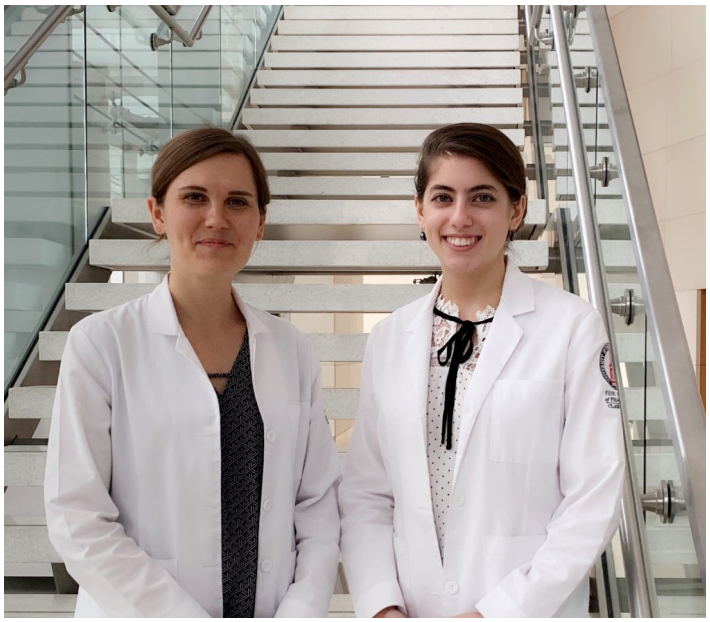
Unified education to physicians, pharmacists, and microbiology personnel on these new MIC breakpoints and use of SDD will be key for appropriate interpretation. Implementation and education of higher doses and frequencies for isolates in the SDD category will be an area for Antimicrobial Stewardship Programs and infectious diseases experts alike to make an impact on patient care.

1. CLSI. Performance Standards for Antimicrobial Susceptibility Testing. 29th ed. CLSI supplement M100. Wayne, PA: Clinical Laboratory Standards Institute; 2019.
2. Heil, E. L., & Johnson, J. K. (2016). Impact of CLSI Breakpoint Changes on Microbiology Laboratories and Antimicrobial Stewardship Programs. Journal of clinical microbiology, 54(4), 840–844. doi:10.1128/JCM.02424-15.
3. ones RN, Mendes RE, Sader HS. Ceftaroline activity against pathogens associated with complicated skin and skin structure infections: results from an international surveillance study. J Antimicrob Chemother 2010; 65:17-31.
4. Das S, Li J, Iaconis J. et al. Ceftaroline fosamil doses and breakpoints for S. aureus in complicated skin and soft tissue infections. J Antimicrob Chemother 2018; 74:425-431.
5. Dryden, M, Zhang, Y, Wilson Y., et al. A phase III randomized controlled non-inferiority trial of ceftaroline fosamil 600 mg every 8 h versus vancomycin plus aztreonam in patients with complicated skin and soft tissue infection with systemic inflammatory response or underlying comorbidities. J Antimicrob Chemother. 2016; 71:3575-3584.
6. Moise PA, Sakoulas G, McKinnell JA, et al. Clinical outcomes of daptomycin for vancomycin-resistant Enterococcus bacteremia. Clin Ther. 2015;37(7):14431453.
7. Britt NS, Potter EM, Patel N, Steed ME. Comparative effectiveness and safety of standard-, medium-, and high-dose daptomycin strategies for the treatment of vancomycin-resistant enterococcal bacteremia among Veterans Affairs patients. Clin Infect Dis. 2017;64(5):605-613.
8. Chuang YC, Lin HY, Chen PY, et al. Effect of daptomycin dose on the outcome of vancomycin-resistant, daptomycin-susceptible Enterococcus faecium bacteremia. Clin Infect Dis. 2017;64(8):1026-1034.

Antibacterial Activity of Ticagrelor Against Antibiotic Resistant Gram-Positive Bacteria

BY: GAIELLE HARB, PHARMD CANDIDATE & TERRA FURNEY, PHARMD CANDIDATE

University of the Incarnate Word Feik School of Pharmacy



The Center for Disease Control and Prevention (CDC) estimates 2 million people in the United States develop an antibiotic resistant infection yearly and of those 23,000 die. As of 2013, the Antibiotics Resistance Threats in the United States was published by the CDC, which outlined the top 18 antibiotic resistant threats in the United States. These threats are further subcategorized into urgent, serious, and concerning.[1] Currently the Food and Drug Administration (FDA) and CDC maintain an antibiotic resistant isolate bank to further drug exploration.[2] Interestingly, this has led to the discovery of ticagrelor as one potential agent against antibiotic resistant strains of bacteria.

Ticagrelor is an active, non-competitive, reversible platelet adenosine diphosphate P2Y12 receptor inhibitor typically used for acute coronary syndrome (ACS). There is emerging data that points to ticagrelor's possible antibacterial activity against antibiotic resistant bacteria thought to be serious threats per the CDC. This was first seen in the 2009 PLATO trial where ticagrelor and clopidogrel use was compared in patients with ACS.[3] When performing a 2014 post hoc analysis of the PLATO trial, researchers discovered a potential additional benefit of ticagrelor since patients treated with ticagrelor had a lower risk of infection-related death than those treated with clopidogrel.[4] Additionally, the 2018 XANTHIPPE trial revealed that ticagrelor was associated with improved lung function in patients hospitalized for pneumonia.[5]

Due to these findings, ticagrelor and 3 of its major metabolites were synthesized and tested against gram-positive (GP) and gram-negative (GN) bacteria in vitro and in mice models.[6] These bacteria include MRSE, MSSA, GISA, MRSA, *E. faecalis*, VRE, *S. agalactiae*, *E. coli*, and *P. aeruginosa*. Ticagrelor and its active metabolite AR-C124910 were identified as having bactericidal activity against all GP strains, including drug resistant strains MRSE, GISA, MRSA, and VRE, but lacked any activity against the GN strains. Additionally in the in vitro studies, at minimal bactericidal concentrations ticagrelor was superior to vancomycin at killing MRSE and MRSA and its bactericidal activity was similar to daptomycin at killing MRSE, MRSA, and VRE. Moreover, ticagrelor displayed synergistic activity with vancomycin, rifampicin, and ciprofloxacin.

Looking into the future, it may be beneficial for patients with cardiovascular disease who are at risk for GP bacterial infections such as infective endocarditis to be treated with ticagrelor over other P2Y12 inhibitors. No studies to date with clopidogrel or prasugrel have shown antibacterial benefit, and therefore a robust clinical trial is needed to determine the efficacy of ticagrelor in these patients. Although further research is needed, ticagrelor-derived antibiotics may be a promising alternative in treating drug resistant bacteria. As antibiotic resistance continues to grow, it is imperative to have new agents available to combat these antibiotic resistant strains.

1. Antibiotic/Antimicrobial Resistance: Biggest Threats and Data. Centers for Disease Control and Prevention. https://www.cdc.gov/drugresistance/biggest_threats.html. Accessed August 21, 2019.
2. CDC & FDA Antibiotic Resistance (AR) Isolate Bank. Centers for Disease Control and Prevention. https://www.cdc.gov/drugresistance/resistance-bank/index.html. Accessed August 21, 2019.
3. Wallentin L, Becker RC, Budaj A, et al; PLATO Investigators. Ticagrelor versus clopidogrel in patients with acute coronary syndromes. N Engl J Med. 2009;361(11):1045-1057.
4. Storey RF, James SK, Siegbahn A, et al. Lower mortality following pulmonary adverse events and sepsis with ticagrelor compared to clopidogrel in the PLATO study. Platelets. 2014;25(7):517-525.
5. Sexton TR, Zhang G, Macaulay TE, et al. Ticagrelor reduces thromboinflammatory markers in patients with pneumonia. JACC Basic Transl Sci. 2018;3(4)435-449.
6. Lancellotti P, Musumeci L, Jacques N, et al. Antibacterial activity of ticagrelor in conventional antiplatelet dosages against antibiotic-resistant gram-positive bacteria. JAMA Cardiol. 2019;4(6):596-599.

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GULF COAST SOCIETY OF HEALTH-SYSTEM PHARMACISTS

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