Outpatient Parenteral Antimicrobial Therapy (OPAT) in Persons Who Inject Drugs (PWID)

ALISON BEIELER PA-C, MPAS

HARBORVIEW MEDICAL CENTER - UW MEDICINE

May 17, 2022

UW Medicine

Disclosures

None

HARBORVIEW MEDICAL CENTER
UW Medicine

Goals of OPAT in PWID Talk

- Candidacy for OPAT in PWID
- Studies of OPAT in PWID
- Early transition to oral antibiotics (Complex Outpatient Antimicrobial Therapy = COpAT)
- Long Lasting Injectables (lipoglycopeptides)

Vulnerable populations & OPAT

- IDSA: No recommendation for PWID and OPAT - **Decisions should be made on a case-by-case basis.**
  - At Harborview - persons who inject drugs (PWID) – stringent eval of social situation

    ⇒ Addictions consult and Chemical dependency consult, if available

  - **Shared decision making** with the patient regarding treatment plan
  - Screening, Brief Intervention, Referral to Treatment (SBIRT)
  - Engage social work and community outreach teams (if available)
  - Close follow up

Shared Decision Making – Patient & Providers

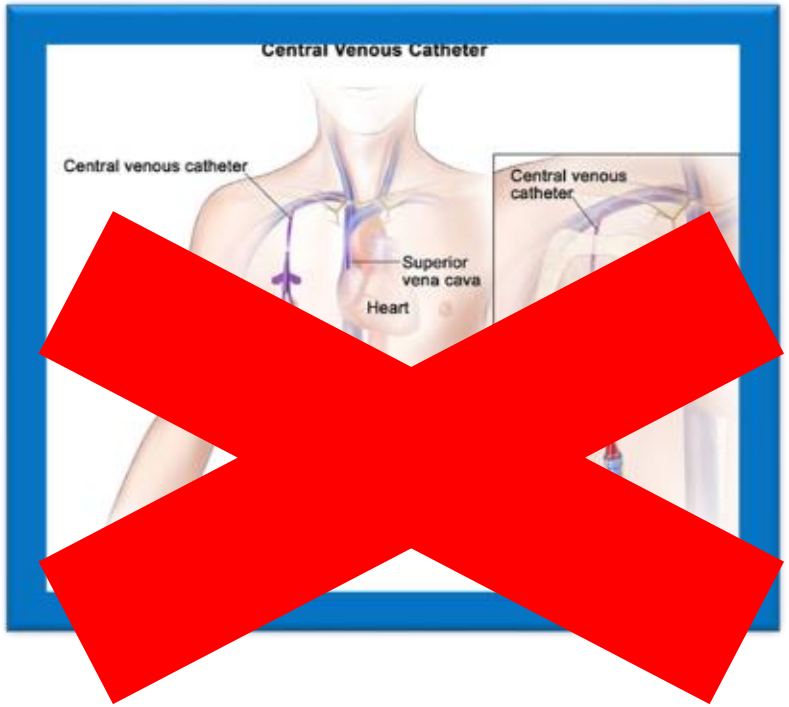
- Candidacy for OPAT & IV access
  - Do they have: stable housing, access to running water, electricity, cell phone
  - Is the IV access a “trigger” for relapse into substance use
  - Is the IV access not allowed at addiction treatment facility/shelter
  - Is PWID a barrier to discharge placement – accepting skilled nursing facility, home health agency

- Do they have reliable method of communication/transportation
- Is the patient willing/able to travel to clinic/infusion center for visits
- Is the patient willing/able to take oral medications daily
- Does the patient have a community support system

IV Access

- Consult vascular access team to determine potential options

Peripherally Inserted Central Catheter (PICC)
- in arm



Central Venous Catheter (CVC)
- a tunneled chest line

OPAT in PWID

- OPAT in PWID - review of literature, 10 studies
  - 72 – 100% completion rate in all studies
    - Success rate > 80 % in 6 studies

  - Discharge location: home, medical respite, skilled nursing facility, group home, addiction treatment facility
  - Readmissions - range 0.6 – 41%; many over ~ 20%
  - Non-adherence, discharges against medical advice (AMA) - range 1.2 – 36%
  - Adverse events related to IV access – range 2.7 – 9.4 %

Suzuki, et al. Outpatient Parenteral Antimicrobial Therapy Among People Who Inject Drugs: A Review of the Literature. Open Forum Infect Dis. Aug 2018.

OPAT in PWID

- An interprofessional conference - infectious disease (ID), addiction consult service (ACS) members, outpatient parenteral antimicrobial therapy (OPAT) nurse and pharmacist, care management, and hospital inpatient team

  - Develop individualized antibiotic treatment plans – patient preferences/risk mitigation

  - n = 50, including 44 PWID
  - Conference recommended : 35 patients receive IV antibiotics, 14 long-lasting injectable antibiotics, and 1 oral antibiotics at discharge
  - 20 were sent home - 4 prescribed home IV antibiotics, 4 sent to infusion office, 9 given long-lasting injectable, and 3 given oral antibiotics

Sikka MK,et al. "OPTIONS-DC", a feasible discharge planning conference to expand infection treatment options for people with substance use disorder. BMC Infect Dis. 2021

Medical Respite – OPAT in Homeless

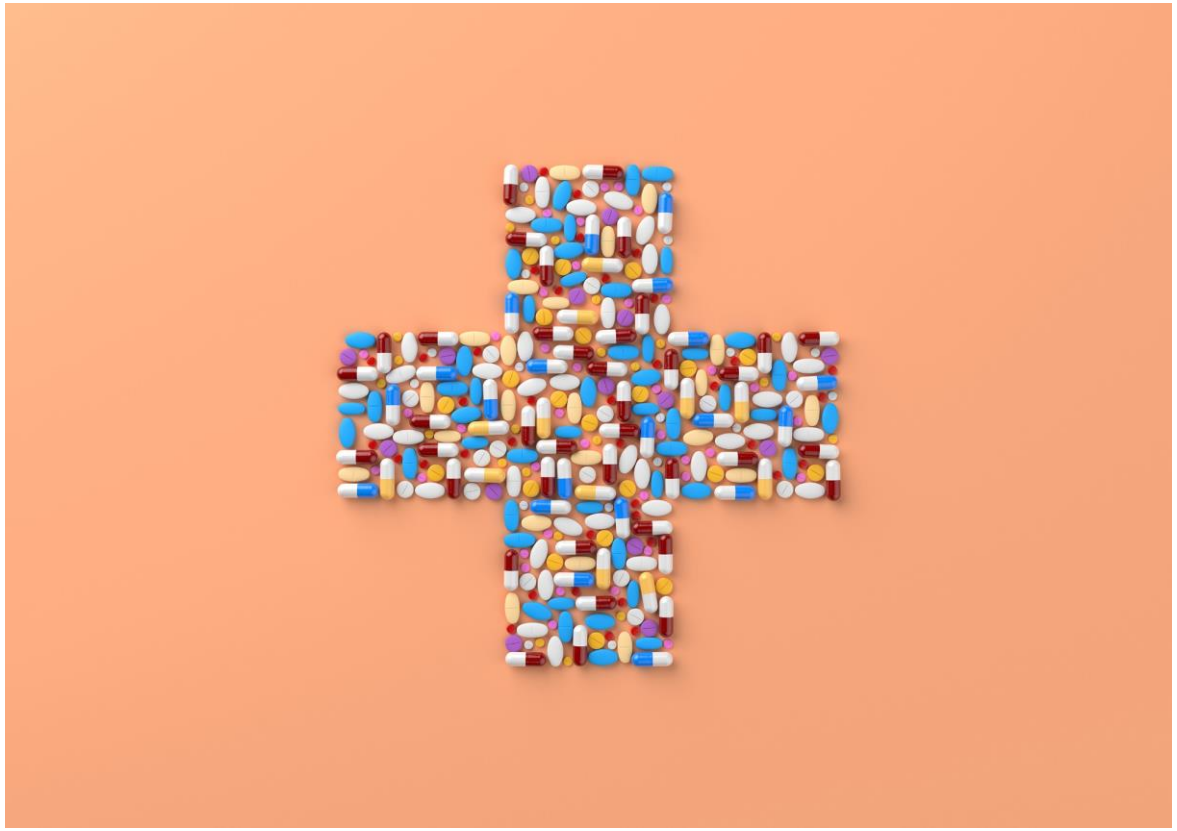
- Directly Observed Therapy (DOT) oral antibiotics
- Administer Q Day or Q 12 hour IV antibiotics
- Harm-reduction model
- Altercation on site or use of alcohol/drugs on site = D/c
- Pts in need of OPAT/COpAT must keep RN visits
- Patients sign vascular access agreement on admission

- 53 OPAT episodes, current PWID in 28 (53%)
- Success – 64% completed OPAT; 87% antibiotic course

Beieler, et al. Successful Implementation of Outpatient Parenteral Antimicrobial Therapy at a Medical Respite Facility for Homeless Patients. J Hosp Med. 2016.

Alternative options for OPAT in PWID

- Early transition to oral antibiotics (Complex Outpatient Antimicrobial Therapy = COpAT)
- Long Lasting Injectables



Oral vs IV Antibiotics for Osteomyelitis (OVIVA)

- Osteomyelitis (extra-axial skeleton, joint infections, and vertebral), n = 909
- Randomized 446 oral vs 443 IV therapy (including 60% with HW)
- Only 7.6% did not have surgical debridement/intervention

- Oral arm: fluoroquinolones [FQ] (44%), combination (17%), penicillin (16%), clindamycin (13%), tetracycline (11%)
  - ~ 50% received adjunctive rifampin
  - Failure at 1 year - 69 of 443 (15.58%) in IV arm VS 61 of 466 (13.09%) in oral arm
  - **Equivalent outcomes with oral vs IV treatment**

Li, HK, et al. Oral versus Intravenous Antibiotics for Bone and Joint Infection. NEJM 2019

Oral Step down for *Staphylococcus aureus* Bacteremia (SAB)

- Negative follow-up blood cultures 48–96 hrs after the index positive Bcx & defervecence in 72 hrs
- Exclusion of endocarditis (uncomplicated SAB)
- Absence of major prosthetic/implanted devices/metastatic sites of infections
- Orals: Linezolid, FQ +/- Rifampin (others: Trimeth-sulfa, Clinda)

  "*oral step-down therapy can be a reasonable alternative for the treatment of select patients with uncomplicated SAB*"

- SAB 201 total pts, included complicated & intra-vasc device
  n =125 oral step down (after 13-14 days IV) - 2 PWID
- Trimeth-sulfa (83 patients, 66%), FQ (22 patients, 18%), and linezolid (11 patients, 9%)
- Cure rate 97 vs 98% - no differences in the outcomes with 3 orals

Dagher, et al. A Narrative Review of Early Oral Stepdown Therapy for the Treatment of Uncomplicated Staphylococcus aureus Bacteremia: Yay or Nay? Open Forum Infect Dis. 2020 May

Pérez-Rodríguez, et al. The benefits and safety of oral sequential antibiotic therapy in non-complicated and complicated Staphylococcus aureus bacteremia. Int J Infect Dis. 2021

Oral Step down for Infective Endocarditis (IE)

- Uncomplicated right-sided S. aureus IE in PWID – given Cipro/Rif – documented cure rates of 76 -100%
- Review of literature - 7 observational studies; orals – beta-lactams, cipro/rif, linezolid with cure rates between 77% and 100%

- Review of 21 studies - transition from IV to oral antibiotics after clearance of blood cultures, and clinical stability
  - *"21 observational studies evaluating the effectiveness…; none found oral step-down therapy to be inferior to intravenous-only therapy"*
- Orals used: FQ, Trimethoprim-sulfa, Tetracycline, Penicillin/Amoxicillin, Clindamycin, Rif

Dworkin RJ,et al. Lancet 1989
Heldman, et al. Am J Med. 1996
Al-Omari, et al. BMC Infect Dis. 2014
Spellberg B, et al. JAMA Intern Med. 2020

Oral Step down for Infective Endocarditis (IE)

POET trial – All patients 10 days IV therapy, and clearance of Bcx

199 patients IV treatment VS 201 patients oral antibiotic treatment – pts followed 6 months

* only 5 PWID included

- See table S10 for details:
  - MSSA & CoNS – Amox + Rif or Diclox + Rif or Linezolid + Rif
  - MRSA – Linezolid + Rif (* no MRSA patients included)
  - *Enterococcus* or *Streptococcus* - Amox + Rif or Linezolid + Rif or Linezolid + Moxi
- Oral antibiotic treatment was non-inferior to intravenous antibiotic treatment

Iversen K, Ihlemann N, Gill SU, et al. Partial Oral versus Intravenous Antibiotic Treatment of Endocarditis. N Engl J Med. 2019

Pries-Heje MM, Wiingaard C, Ihlemann N, et al. Five-Year Outcomes of the Partial Oral Treatment of Endocarditis (POET) Trial. N Engl J Med. 2022.

Long Lasting Injectable (lipoglycopeptides) –Dalbavancin

- Harborview – eval case by case basis – restricted use due to cost
- Severe infections (off-label use)
  - bacteremia, septic arthritis, osteo, endocarditis
  - 32 patients, all with drug use
    - 9 tricuspid endocarditis (4 lost to follow up)
    - ~ 13 days IV therapy – pre dalbavancin

56% (18) clinical response to treatment

- 4 failures, 10 lost

Bryson-Cahn, et al. Dalbavancin as Secondary Therapy for Serious Staphylococcus aureus Infections in a Vulnerable Patient Population. Open Forum Infectious Diseases. February 2019.

Review of Dalbavancin Use in Deep-Seated Infection

Included 15 publications in review – 144 total cases included

- 94 (65%) bone or joint infections
- 24 (17%) catheter-related bloodstream infection
- 19 (13%) infective endocarditis
- 7 (5%) complicated bacteremia

Organisms: *Staph aureus* (93 [57%]), coagulase-negative *Staphylococcus* species (31 [19%]), *Enterococcus* species (13 [8%]), *Streptococcus* species (10 [6%])

95 (66%) patients - no antibiotic therapy pre-dalbavancin

38 patients received antibiotics prior to dalbavancin, median = 8.6 days

Clinical success in 133 (92%) patients - 6 treatment failure & 5 lost to follow-up

Cooper, et al. Multiple-Dose Dalbavancin Regimens as the Predominant Treatment of Deep-Seated or Endovascular Infections: A Scoping Review, Open Forum Infectious Diseases. Nov 2021

Long Lasting Injectable – Dalbavancin

- Dalbavancin to facilitate d/c, given 7–10 days before end date of therapy n = 27 (2/1/2018 to 11/30/2019)
- Given median 21 days after blood culture **neg** or source control (*S. aureus*)
  - bacteremia (17), endocarditis (8), bone and joint infection (6)
- PWID (67%), experiencing homelessness (56%)
  - Median LOS = 26 days.
- 7 bed days saved - Estimated **cost avoidance $9600 per patient**
- 22 (81%) patients with clinical success

Vazquez Deida, et al. Use of a Standardized Dalbavancin Approach to Facilitate Earlier Hospital Discharge for Vulnerable Patients Receiving Prolonged Inpatient Antibiotic Therapy, Open Forum Infectious Diseases. August 2020.

Dalbavancin – Osteomyelitis

- Randomized Dalba (1500 mg IV on D1;D8) or standard of care (SoC) for osteomyelitis (oral or IV) for 4–6 weeks
- March 2016 to Dec 2017, Ukraine
- Dalba, n = 70 Vs SoC, n = 10
- Clinical cure at 42 days - 65/67 (97%) Dalba Vs 7/8 (88%) SoC
- Clinical response similar in the Dalba group at day 21 (94%), 6 months, 1 year (96%)
- Adverse events in 10 Dalba patients; no patient discontinued treatment

Rappo, et al. Dalbavancin for the Treatment of Osteomyelitis in Adult Patients: A Randomized Clinical Trial of Efficacy and Safety, Open Forum Infectious Diseases. January 2019.

Summary - OPAT in PWID

- **Shared decision making** with the patient regarding treatment plan
- What is feasible in this specific case
- Communicate with patient & interdisciplinary team (if available)
- Close follow up recommended

Resources for Providers

- IDSA Guidelines - OPAT, MRSA, Endocarditis
  - www.idsociety.org

- Substance Abuse and Mental Health Services
  - SAMHSA.gov

Questions

beielera@uw.edu

Thank you!

HARBORVIEW MEDICAL CENTER
UW Medicine