Optimising health and safety of people who inject drugs during transition from acute to outpatient care: narrative review with clinical checklist -- Thakarar

Review

Optimising health and safety of people who inject drugs during transition from acute to outpatient care: narrative review with clinical checklist

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Abstract

The opioid epidemic in the USA continues to worsen. Medical providers are faced with the challenge of addressing complications from opioid use disorders and associated injection-drug use. Unsafe injection practices among people who inject drugs (PWID) can lead to several complications requiring acute care encounters in the emergency department and inpatient hospital. Our objective is to provide a narrative review to help medical providers recognize and address key health issues in PWID, who are being released from the emergency department and inpatient hospital. In the midst of rates in overdose deaths and infections such as hepatitis C, we highlight several health issues for PWID, including overdose and infection prevention. We provide a clinical checklist of actions to help guide providers in the care of these complex patients. The clinical checklist includes strategies also applicable to in-office settings, which may lack addiction treatment options. Our review and clinical checklist highlight key aspects of optimizing the health and safety of PWID.

Introduction

The transition from acute to outpatient care for people who inject drugs (PWID) after prolonged, complex hospitalizations can be challenging for both patients and providers. Our objective is to provide a narrative review to help medical providers recognize and address key health issues in PWID, particularly at the point of follow-up after injection drug-related hospital or emergency department (ED) visits. In this review, we begin with a case presentation to illustrate the opportunities to address these issues and end with clinical recommendations in the form of a checklist.

Methodology

We searched PubMed through December 2015 for review articles and clinical guidelines pertaining to the care of PWID. Examples of search terms that we used included injection drug users, illicit drug use, people who inject drugs, substance abuse, opioid dependence, mental health and substance abuse and harm reduction. We also manually searched the reference lists from identified articles and focused on those articles, along with other individual manuscripts, that were clinically relevant to this topic. The clinical checklist for this manuscript was generated based on evidence-based guidelines and clinical experience.

Case presentation

A male age 29 years with history of injection drug use had two admissions for methicillin-sensitive Staphylococcus aureus (MSSA) tricuspid valve (TV) endocarditis. First admission: The patient, who presented with fever and shortness of breath, was found to have MSSA native TV endocarditis, complicated by complete heart block and epicardial emboli. He was treated with intravenous (IV) antibiotics, dual-chamber pacemaker placement and bioprosthetic TV replacement. While in the hospital he was treated with methadone for opioid use disorder, but this was eventually tapered off. The patient followed up with his primary care physician, who offered buprenorphine treatment and clinic-based counselling. The patient declined, reporting he was aware of the available resources and planned to seek out help if he needed it.

Second admission: During the year after discharge, the patient relapsed to injecting heroin again. He presented with fever and shortness of breath, and was subsequently treated for MSSA tricuspid bioprosthetic valve endocarditis requiring IV antibiotics and pacemaker removal in the setting of persistent bacteremia. His opioid withdrawal was initially treated with methadone, but this was discontinued due to QT prolongation, and not restarted due to multiple episodes of tachycardia and prongs while off of methadone. After his bacteremia cleared and his pacemaker was replaced, the plan was to discharge the patient on a taper of his opioid medications, with plan for outpatient buprenorphine maintenance.

In the following narrative review organized as a clinical checklist, we outline the key health issues in PWID, raised by this case. Within the clinical checklist, we provide concrete actions, with an emphasis on overdose (OD) and infection prevention that can be taken to improve health and safety of PWID.

Checklist components

Addiction history

Interviewing patients in a non-judgmental manner and approaching addiction like any other medical illness is an important component of taking an addiction history. Both open-ended questions (‘How has heroin use affected your life?’) and quantifiable questions (‘How many times did you use heroin last month?’) should be asked in order to gather more information about patterns of drug use. Addiction is a developmental disease that plays out over the life course through recurrent periods of relapse and recovery, where younger age at initiation and higher exposure lead to worse and more chronic outcomes. Therefore, asking about age of first substance use (including tobacco, alcohol, marijuana and other illicit drugs other than opioids) can be useful in understanding the prognosis. Understanding the patient’s personal relapse triggers, coping skills, recovery tools and prior experience with treatment are all helpful for creating a strengths-based risk reduction, treatment and relapse prevention plan. An OD history should be collected, as OD is the leading cause of preventable death in PWID.

Street pills/past substance use

Psychoactive use is common and should be accounted for in the treatment plan. The use of other drugs such as cocaine and benzodiazepines can complicate management, especially for patients on medication treatment for addiction. Prescriptions with street value and misuse potential are not limited to opioids, stimulants, benzodiazepines, clonidine, promethazine, gabapentin and quetiapine. Patients may divert or use these medications to self-medicate underlying symptoms and/or boost ‘the high’ or euphoria from using substances.3–6 Prescribers should educate patients about the risk of tolerance, withdrawal and safety concerns associated with prescription pill misuse. Communication between prescribers is important to reduce the risk of adverse interactions.7 8 These prescription medications should only be prescribed if a demonstrable benefit can be documented and it outweighs the concomitant risk. Urine drug screens can be used to monitor when non-adherence or diversion is suspected; however, not all diverted and misused prescription medications are detectable. A confirmaatory method such as gas chromatography-mass spectrometry can be employed to confirm whether or not the drug is actually present in the urine in low levels.

Readiness for treatment

Assessing readiness for change is an integral part of determining what combination of harm reduction services and treatment are appropriate for each patient. This approach involves assessing what stage of motivation for treatment patients are in and tailoring the treatment and safety plan to this motivation stage.11 12 Patients who are highly motivated to seek treatment for addiction may be more appropriate for office-based treatment. However, patients who are more anticautious about seeking treatment may benefit from a focus on safety planning (also known as harm reduction). A patient-centred approach that accounts for the patients’ preferences and prior experience with specific modalities as well as knowing accessible community resources facilitates formulation and prioritisation of treatment and safety planning.

Treatment options

In the USA, the majority of people presenting to care who use injection drugs have an opioid use disorder. There are three medications currently approved by the US Food and Drug Administration (FDA) to treat opioid use disorders: buprenorphine, methadone and naltrexone.13–15 These medications can effectively and legally be initiated during an inpatient hospitalisation by clinical providers.16

Opioid agonist therapy

Buprenorphine is a mu-receptor partial agonist and is conformed with naloxone, a mu-receptor antagonist, in order to prevent misuse and OD. Buprenorphine/naloxone is an effective treatment option for opioid dependence particularly in the office-based setting. It is safe and well-tolerated, requiring less monitoring than methadone.16–19 Buprenorphine monotherapy can be used in pregnant women.21 Initiating buprenorphine opioid agonist therapy (OAT) for hospitalised patients or patients seen in the ED who are not otherwise engaged in care has also been shown to be effective in linkage to outpatient care.22 23 Methadone is a mu-receptor agonist that is administered daily through federally regulated clinics.15 24 Improved outcomes associated with OAT include reduced opioid use, OD, medical costs and hospital utilisation.25–27 Additional benefits of methadone maintenance therapy (MMT) include reduced criminal activity and reduced HIV transmission.28 29 MMT has been associated with greater retention in care compared with buprenorphine, where evidence is mixed depending on dosing schedules.

Opioid antagonist therapy

Naltrexone is a mu-receptor antagonist that can be administered orally or in sustained-release form. It is approved for opioid and alcohol use disorders.30–32 Oral naltrexone effectiveness has been limited largely due to adherence issues.33 Long-acting, injectable naltrexone is effective for opioid dependence treatment.34 However, the need for patients to be opioid-abstinent for >7 days to avoid precipitated withdrawal can present a substantial barrier to initiating injectable naltrexone.

Mental health

Patients with substance use disorders have a high burden of mental health comorbidities.34 The treatment of addiction problems can unmask underlying mental illness that if untreated, can lead to relapse to substances or a worsening of the underlying mental health problem.35 36 Individual and/or group counselling, psychopharmacotherapy and supportive services, such as case management, are important components of mental health services for patients with co-occurring mental health and substance use disorders.37 Some studies have found the integration of mental health services with substance use treatment to be equivalent, largely due to adherence issues.38 39 However, with increased emphasis on the patient-centred home, integrating mental healthcare

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into the addiction treatment and/or primary care setting does have potential benefits, including mental health treatment retention and substance-negative urines. Providers should facilitate access to collaborative mental healthcare when patients have mental health problems and care is available.

OVERDOSE prevention

Opioid OD deaths, from both prescription opioids and heroin, have risen rapidly over the past decade among all age groups, genders and almost all racial/ethnic groups. Strategies to address OD prevention include OAT (described above), the use of naloxone rescue kits, prescription monitoring programmes (PMYP), safe opioid prescribing, safe storage and disposal and supervised injection facilities (SIFs).

Naloxone rescue kits

The Office of National Drug Control Policy, the US Department of Health and Human Services, the Substance Abuse and Mental Health Services Association and the American Society of Addiction Medicine endorse OD prevention education and equipping people with naloxone rescue kits. Naloxone is cost-effective, rapidly acting, non-addictive opioid antagonist with minimal adverse side effects and is particularly effective when distributed in the hands of PWID and their social networks. Providers should prescribe naloxone rescue kits to their patients to lower their own risk and to also review how patients will respond to an opioid OD, if they witness one, which includes recognizing it, calling for help, rescue breathing, administering naloxone and staying with the person until help arrives.

Prescription monitoring programmes

States have adopted PMYP in order to address the rising non-medical use of opioids. While the types of drugs monitored may vary depending on state laws, data from these programmes are accessible to those who register. Some PMYP have potential in terms of decreasing ‘doctor shopping’ and the diversion of opioids, but they have yet to show an impact of OD death rates. Notably, health provider uptake remains a challenge.

Safe storage and disposal

One strategy to prevent prescription opioid OD and misuse is the use of a medication lock box. Patients should also be counselled on how to dispose of any unused opioids or chronic pain medications. Prescription drug take-back events were developed in order to address opioid diversion. CDs and environmental implications of improper medication disposal. These events are a means of appropriately disposing prescription medications.

Supervised injection facilities

In order to encourage safe drug injection techniques, promote OD prevention and increase access to primary care, SIFs were developed. In these facilities, individuals are provided a sterile environment for injecting and disposal of needles and also have access to harm reduction services. These facilities have been adopted in Canada, Australia and Europe and have been associated with lower levels of drug injections occurring publicly, safer syringe disposal and reduced OD death rates. However, the USA has not yet developed such facilities. While additional outcomes research is needed, SIFs have the potential to reduce OD deaths and infection-related complications associated with drug injection.

Infection prevention

Safer injection techniques

Injection drug-use is associated with a range of infectious complications, which can be reduced through safer injection techniques:

- Filters: Cotton balls or cigarette filters are often used as filters to trap particulate matter when injecting. They are subject to skin or oral contamination prior to use and if reused. Prefilled filters, such as micron filters or dental cotton pellets that do not require manipulation are ideal for filtration, and in conjunction with other injection hygiene measures, can reduce bacterial loads.
- Cookers: The process of cooking, or injecting drugs while using heat, can help decrease microbial burden entering the bloodstream. However, patients should avoid reusing or sharing cooking equipment (eg, spoons, bottle caps), as these practices have been linked to infections such as hepatitis B, hepatitis C and HIV. If patients share drugs, it is recommended that they cook their drugs separately. To avoid contamination with bacteria, including Pseudomonas aeruginosa, sterile water should be used.
- Injection site preparation: Naloxone should be prescribed to practice hand hygiene before and after injecting, use an alcohol pad, glove and mask at the injection site, cleanse outer surfaces their blood may have touched (such as four五四) and to safely dispose of equipment. Note that ‘skin popping’ and ‘masing’ (injection of drugs into subcutaneous or intramuscular sites, respectively), common for people unable to find a vein, can similarly result in soft tissue and endovascular complications from injection drug use.
- Sterile needles and syringes: Ideally, new sterile needles and syringes should be used each time, as bleach and other disinfectants do not sterilize fully.
- Acidifiers: When injecting solids such as base heroin or crack cocaine, acidifiers such as vinegar and lemon doce are commonly used to dissolve the drugs. These acidifiers, however, are caustic, and can cause disseminated infections (eg, candidemia, endophthalmitis). Also, sharing acidifiers increases the risk of transmission of HIV and hepatitis C. If using acidifiers, patients should be counselled to use single-use vitamin C (ascorbic acid) packets, which are sterile, non-toxic and considered safe acidifiers.

Sexually transmitted infection evaluation

PWID are at high risk for both acquiring and transmitting sexually transmitted infections (STIs). Therefore, asymptomatic PWID should be screened for STIs. This includes at least annual HIV, hepatitis B (if not immune) and C testing as well as syphilis screening, gonococcal and Chlamydia testing, and testing for trichomoniasis as clinically indicated. Patients should receive safer sex counselling in conjunction with testing.

Vaccinations

Hepatitis A and B, Td and Tdap vaccinations should be administrated to PWID who are not already immune or who have not received within guideline time windows. In susceptible patients at risk for loss to follow-up, the vaccine series for hepatitis B can be initiated immediately after being withdrawn for drug use. PWIDs who smoke or have a concurrent alcohol use disorder (PCOD) and/or PWIDs who should be administrated.

Screening for tuberculosis

Drug use has been associated with higher risk of tuberculosis and therefore, PWID should be screened as advised by the Centers for Disease Control (CDC) guidelines.

Pre-exposure prophylaxis for HIV prevention

PWID are at a high risk for acquiring HIV infection. Pre-exposure prophylaxis (PXP) involves a high-risk, HIV-negative person taking antiretrovirals in order to prevent acquiring HIV. The CDC recommends daily oral tenovir/emtricitabine for PXP in PWID. This recommendation applies to individuals who have injected drugs within the past 6 months, including those who have attended drug treatment centres for injection drug use within the past 6 months. It also applies to PWID who report sharing injection equipment. PXP for HIV prophylaxis is generally both safe and effective when medication adherence is high. Regular (every 3 months) monitoring for HIV infection and renal complications from the medication is recommended as part of PXP.

Hepatitis C treatment

In 2009, over 3.2 million people in the USA were infected with chronic hepatitis C. The prevalence of hepatitis C among PWID is high; worldwide, it is estimated that approximately 10 million PWID are infected with hepatitis C. In several countries, PWID account for 85% of new hepatitis C cases and 60% of existing hepatitis C cases. Approximately 75% of individuals who acquire hepatitis C develop persistent infection, which may progress to severe liver diseases. The rate of hepatitis C-related deaths, often due to liver-related or drug-related issues, is increasing; deaths from hepatitis C now exceed deaths from HIV in the USA, and a majority of deaths are in relatively young people (aged 45-64 years). Hepatitis C treatment in PWID is highly effective, especially when treatment is integrated with psychiatric or addiction treatment. Rates of hepatitis C reinfection among PWID have been relatively low; unstable housing and HIV coinfection may be risks for reinfection and ongoing supportive care remains important.

Case management for concrete needs/bolstering supportive services

PWID face socioeconomic challenges associated with worse outcomes. For example, unstable housing is associated with higher levels of substance use and other risky injection behaviours, and drug OD is a leading cause of death in the homeless population. Supportive services provided by addiction counsellors, nurses, case managers and social workers may improve healthcare delivery in PWID. Homelessness is also a risk factor for increased ED use among PWID; thus, addressing homelessness may reduce unnecessary acute care visits. The use of case management to help patients acquire housing, insurance, other benefits and access to education and job training may be effective in linking patients to and retaining them in care.

Discussion

PWID often present to the hospital or ED when they have serious medical complications. These contacts with the health system provide an opportunity to engage high-risk patients in primary outpatient care, address the addiction, the root cause of these complications and optimize their health and safety.

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Key aspects of optimising the health and safety of PWID.

The opioid epidemic continues to worsen, and health providers are faced with the challenge of addressing complications from injection drug use, as well as addressing the underlying addiction issues. Our case presentation, review and clinical checklist highlight key aspects of optimising the health and safety of PWID.

Current research questions

What strategies are effective in overdose prevention?

What types of medication treatment for opioid use disorders are available in the USA and how do they vary?

How should people who inject drugs be counselled on infection prevention?

Main messages

People who inject drugs (PWID) often present to the hospital or emergency department when they have serious medical complications. These contacts with the health system provide an opportunity to engage high-risk patients in primary outpatient care, address the addiction, the root cause of these complications and optimise their health and safety.

Health issues for PWID include: addiction, readiness for treatment, treatment options, overdose prevention, infection prevention, mental health needs and other concrete needs such as housing.

Prioritising health issues is necessary: some communities may lack addiction treatment options, therefore, the provider’s approach must be adapted to the patient’s needs, the clinical setting as well as what is accessible in the community.

Key references


Self assessment questions

Please answer true or false to the below statements.

Patients should never be offered exclusively harm reduction services.

Methadone, buprenorphine and naloxone can all be prescribed in any outpatient setting in the USA.

Patient outcomes are improved when mental health needs and addiction treatment are addressed concurrently.
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Naloxone use is only recommended for medical professionals, as this is a dangerous medication with significant side effects.

Hepatitis C treatment has not been shown to be effective in persons who inject drugs.

Answers
False—Depending on the patient’s readiness for change, it may be appropriate to offer the patient exclusively harm reduction services until the patient is interested in additional treatments.

False—in the USA, methadone is dispensable through specific federally regulated clinics. Buprenorphine and naloxone can both be prescribed in any outpatient setting; however, physicians must obtain an additional waiver from the DEA before prescribing buprenorphine.

True—as mental health can strongly impact the success of addiction treatment, it is best practice to approach both diseases concurrently.

False—Many organisations support broad community distribution of naloxone.

False—People who inject drugs can have their hepatitis C successfully treated, especially with treatment integrated into their psychiatric and addiction treatment.

Footnotes
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Contributors
Conceived and designed the study: KT and AYW. Writing and revision of manuscript: KT, ZMW and AYW.

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Competing interests
KT reports grants from NIH during the conduct of the study.

Patient consent
Obtained.

Ethics approval
Prior to the submission of this manuscript, written and verbal consent was obtained from the patient in our case study, whose identity is anonymous.

Provenance and peer review
Commissioned; externally peer reviewed.

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