SUBSTANCE USE DISORDER PATIENTS' PERSPECTIVES OF A MULTIDISCIPLINARY ANTIMICROBIAL INFUSION SERVICE

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ABSTRACT

Background: Injection drug use is associated with infectious diseases such as endocarditis and osteomyelitis requiring prolonged intravenous (IV) antimicrobial therapy. Few programs offer simultaneous inpatient infectious disease and addiction treatment. WVU Medicine implemented a multidisciplinary Infusion Service (IS) to provide IV antimicrobial therapy while treating substance use disorder. From 2017 through 2019, IS cared for over 840 patients. The aim of this study was to evaluate IS by assessing patients' perspectives of overall experience, interactions with healthcare providers, and preparation for continued recovery from substance use.

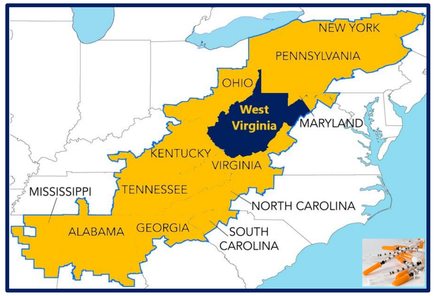
Methods: Adults ≥ 18 and < 90 years-old with substance use disorder on IS between November 2019 and May 2020 were eligible. Demographic, substance use, and infectious diseases data were obtained by chart review. Confidential surveys with questions about overall experience, interactions with healthcare providers, and preparation for continued recovery were administered the first week after transfer to IS and again the week of discharge.

Results: Forty-two patients completed 39 initial and 12 follow up surveys. All used injection drugs, 85.7% (36/42) used opioids and 66.7% (28/42) used methamphetamine. Endocarditis was most common infection (61.9% (26/42)), with *Staphylococcus aureus* most often isolated (59.5% (25/42)). IS experience and care for infection were excellent or good in 97.4% (38/39) initial and 100% (12/12) follow up surveys. During IS, patients did not perceive being treated differently due to substance use in 94.9% (37/39) initial and 83.3% (10/12) follow up surveys. Before IS, patients perceived being treated differently in 84.6% (33/39) initial and 100% (12/12) follow up surveys. Patients felt IS would help with continued recovery in 84.6% (33/39) initial and 100% (12/12) follow up surveys.

Conclusions: According to patients' perspectives, IS is effective in creating a positive healthcare experience, reducing stigma associated with substance use, and preparing patients for continued recovery after discharge. This study supports combining inpatient infectious disease and addiction therapy. Infectious diseases providers should be educated about this multidisciplinary approach.

INTRODUCTION

- Substance use causes an enormous health burden in US
- Over past decade, geographic patterns of injection drug use (IDU) transitioned from urban to rural areas
- WV is epicenter of Appalachian Opioid Epidemic



INTRODUCTION

- IDU is associated with serious and costly infectious diseases such as endocarditis and osteomyelitis that require prolonged IV antimicrobial therapy
- Few programs offer simultaneous inpatient infectious disease and addiction treatment
- WVU Medicine implemented a multidisciplinary IS that provides IV antimicrobial therapy while treating underlying substance use disorder
- IS services include infectious disease information and care, psychiatric evaluation, medication assisted treatment (MAT), group therapy, individual therapy, PT/OT, pain management, spiritual counseling, music therapy, gym access, outdoor time, opportunity to talk to peers facing similar issues, and connection with care and services after discharge
- From 2017-2019, IS cared for > 840 patients, reducing average inpatient cost and readmission rates
- Studies assessing substance use disorder associated infectious disease patients' perspectives of treatment are lacking
- Primary aim is to evaluate IS by assessing patients' perspectives

Patients' Perspectives
- Overall experiences
- Interactions with healthcare providers
- Preparation for continued recovery

- Ultimate goal is to use results of this study to optimize patient-centered care for substance use disorder associated infectious disease patients

METHODS

- Non-interventional prospective cohort study acknowledged by WVU IRB
- Adults ≥ 18 and < 90 years-old with diagnosis of substance use disorder cared for by IS from November 2019 through May 2020
- Demographic, substance use, and infectious diseases data obtained by chart review
- Identical confidential surveys with 25 questions about overall experience, interactions with healthcare providers, and preparation for continued recovery from substance use administered within 4-7 days of transfer to IS and within 7 days prior to discharge
- Data analysis using descriptive statistics

RESULTS

- 39 initial and 12 follow up surveys

Demographic and Clinical Characteristics		
	Mean (years)	**SD**
Age (years)	34.9	1.54
	Frequency	**Percent**
Gender		
Male	13	31.0
Female	29	69.0
Illicit Drug Use		
Opioids	36	85.7
Methamphetamine	28	66.7
Cannabinoids	14	33.3
Buprenorphine	7	16.7
Method of Drug Use		
Intravenous	42	100.0
Inhaled/Intranasal	15	35.7
Ingestion	11	26.2
MAT During Admission		
Yes	37	88.1
No	5	11.9
Primary Infection		
Endocarditis	26	61.9
Osteomyelitis	9	21.4
Skin and soft tissue infection	5	11.9
Pathogen		
MRSA	14	33.3
MSSA	12	28.6
Streptococcus species	9	21.4
Treatment Completion		
J.W. Ruby Memorial Hospital	32	76.2
Other inpatient facility	6	14.3
AMA	4	9.5

Survey Results		
	Initial	**Follow up**
Overall Experience		
Excellent	20 (51.3%)	10 (83.3%)
Good	18 (46.2%)	2 (16.7%)
Average	1 (2.6%)	0 (0.0%)
Poor	0 (0.0%)	0 (0.0%)
Very Poor	0 (0.0%)	0 (0.0%)
Care for Infection		
Excellent	28 (71.8%)	9 (75.0%)
Good	10 (25.6%)	3 (25.0%)
Average	1 (2.6%)	0 (0.0%)
Poor	0 (0.0%)	0 (0.0%)
Very Poor	0 (0.0%)	0 (0.0%)
IS Treated Differently		
Yes	2 (5.1%)	2 (16.7%)
No	37 (94.9%)	10 (83.3%)
Pre-IS Treated Differently		
Yes	33 (84.6%)	12 (100.0%)
No	6 (15.4%)	0 (0.0%)
Preparation for Recovery		
Definitely yes	25 (64.1%)	11 (91.7%)
Probably yes	8 (20.5%)	1 (8.3%)
Undecided	4 (10.3%)	0 (0.0%)
Probably not	1 (2.6%)	0 (0.0%)
Definitely not	1 (2.6%)	0 (0.0%)
Return if Need Similar Help		
Definitely yes	31 (79.5%)	10 (83.3%)
Probably yes	5 (12.8%)	1 (8.3%)
Undecided	0 (0.0%)	0 (0.0%)
Probably not	2 (5.1%)	1 (8.3%)
Probably not	1 (2.6%)	0 (0.0%)

DISCUSSION

- Opioids followed by methamphetamine were most common illicit substances used by study participants, mirroring prevalence in WV; all study participants were persons who inject drugs
- Large proportion of study participants were initiated on MAT while hospitalized
- Endocarditis followed by osteomyelitis were most common primary infections; opioid, stimulant, and other illicit substance use is resulting in a concurrent epidemic of these serious invasive infections
- *Staphylococcus aureus* was most frequently isolated pathogen with slightly higher number of invasive infections from MRSA vs. MSSA; persons who inject drugs are > 16X more likely to develop invasive MRSA infections, and proportion of invasive MRSA infections associated with injection drug use has risen over recent years
- Majority completed intravenous antimicrobial therapy on IS with few leaving AMA; inpatient addiction therapy including MAT may have contributed to reduced AMA discharges, which have been shown to be associated with increased readmissions and mortality
- Overall IS experience and care for infection were excellent or good in nearly all cases; most liked IS services were information about infection, getting to know peers facing similar issues, MAT access, and group therapy
- Patients perceived less substance use disorder associated stigma on IS vs. pre-IS
- Majority felt IS helped with preparation for continued recovery from substance use following discharge
- Nearly all patients would return to IS if in need of similar help again
- Follow up survey number was low, which may be due to difficulty predicting discharge dates and/or emphasis on coordinating outpatient care during discharge period
- Although limited, literature supports initiation of addiction therapy in the inpatient setting
- To our knowledge, similar studies assessing patients' perspectives of combined inpatient infectious disease and addiction therapy are lacking

CONCLUSIONS

- IS is known to be effective based on patient short-term outcomes and decreased inpatient costs and readmissions
- According to patients' perspectives in this study, IS is also effective in creating a positive overall healthcare experience, reducing stigma and preparing patients for continued recovery from substance use after discharge
- This study supports a multidisciplinary approach, including infectious disease and addiction therapy, when treating substance use disorder associated infectious disease patients
- Infectious diseases providers should be educated about this multidisciplinary approach
- Future studies are needed to assess long-term patient outcomes

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