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RESEARCH ARTICLE

SYSTEMIC COMPLICATIONS OF INTRAVENOUS DRUG USE: NORTH EAST INDIA EXPERIENCE

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IV Drug User (IDU), Blood borne Virus infection, systemic complications, mortality among IDU.

Abstract

Introduction: The intravenous administration of narcotics and other drugs may frequently result in serious and often life-threatening systemic complications. Drug contaminants and non sterile injection techniques with resultant infection are responsible for many of these complications. Objectives To determine the spectrum and frequency of systemic complications associated with IV Drug use and clinical outcomes evaluation.

Methods: A descriptive study was carried over a period of 4 months among indoor patients admitted in department of medicine of a tertiary care hospital of Tripura. The study was conducted on 10 consecutive patients of IV drug abuse.(IDU/PWID).Detailed clinical history and physical examinations were performed .Standard investigations including Complete blood count ,LFT,KFT,HbsAg,Anti HCV,HIV ELISA,Purified protein derivative,Rapid plasma reagin, Chest xray, ECG and depending on symptoms HRCT,Blood cultures,Cardiac biomarkers,sputum analysis,Echocardiogram, Doppler ultrasound,CT or MR angiography, venography were performed.

Results : The study included 10 patients,all being males,with mean age of 26.5years.Common complications include blood borne infections (HIV in60%cases,Chronic Hepatitis C in 80%,Chronic Hepatitis B in 10% cases),cardiovascular complications in 5(50%)cases,pulmonary complications in 4 cases(40%),neurological complications in 2(20%) cases,Renal(renal failure) in 2(20%) cases.Mortality rate was 30%.Patie nts with infectious diseases have higher mortality than those without.

Conclusion: IV drug abuse is associated with a wide range of systemic complications, emphasizing the need for comprehensive care and multidisciplinary management in these patients

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Introduction:-

Intravenous injection of a drug is a method of injecting drugs into the body reaching systemic circulation via hypodermic needle through intravenous route. The experience of full effect of drug is seen within 10 seconds which is faster compared to other modes of administration which is why abusers favor iv administration[1].Intravenous drug abuse is increasingly becoming a major health problem all over the world. However, the problem has emerged rapidly in the past few years in India. According to a 2019 report by the National Drug Dependence Treatment Centre(NDDTC) at AIIMS,the states of Mizoram and Manipur of Northeast India had highest proportion of intravenous drug abusers surpassing Punjab[2].They do so under stress and peer pressure which result in addiction and develop into a lifelong habit All the states of North east India including Tripura, being nearer to the golden triangle, transit of drugs has become easy route of drug movement and a recent decade has seen a rise of illicit intravenous drug abuse such as opioids .[3]Unsafe injection practices and frequent needle sharing predispose these individuals to a variety of systemic complications. These are not only life threatening but often result in long-term disability and increased burden to healthcare systems. A study published in the Indian journal of psychiatry in 2021 found that Hepatitis C was the most common morbidity among iv drug abusers treated at de addiction centre in Agartala[4].While infectious diseases are well documented there is not much records on the other systemic complications of IV drug abuse in Tripura .This study aims at describing the frequency and spectrum of clinical complications in a series of IV drug user cases hospitalized to a tertiary care Hospital, Tripura.

Materials and Methods: -

A prospective case series was carried out over a period of almost 4 months (from 21st April to 31st July 2025) among indoor patients admitted in department of Medicine of a tertiary care hospital in Tripura. The study was conducted on 10 cases with documented history of IV drug abuse.

Inclusion criteria:

Patients with confirmed history of IV drug abuse admitted with systemic complications in the department of Medicine.

Exclusion Criteria:

i)Localized abscesses without systemic involvement.
ii)Oral or inhaled drug abuse without IV use.
iii)Those who have not given consent for study.

Data collection:

Detailed history and physical examination were done and data collected on Age, sex, type of drug, duration of IV drug use; presenting symptoms and physical findings. Standard investigations were performed including CBC,LFT,KFT,Na^+,k^+,HbsAg,AntiHCV,HIV ELISA, Rapid plasma reagin, purified protein derivative,chest xray,ECG, and depending on patients symptoms HRCT chest,Echocardiogram,CT Brain,Blood cultrure,Cardiac Biomarkers,Sputum analysis,CT or MRangiography, venography,Doppler ultrasound for diagnosis of complications

Results:-

A total of 10 cases were included in the study. All of them were males in the age range of 20 to 40 years with a mean age of 26.5 years. They were using IV drugs for a median period of 5 years. Most of them used opioids like heroin,brown sugar etc(80%),others used stimulants like Cocaine(10%) some of them used poly drug injection (10%).Most of the cases used antecubital fossa and forearm as the site of injection(62%),some used hands and wrists(23%),dorsal venous plexus of foot (10%),few of them used femoral veins(5%).Use of contaminated needles seen in 80% cases, needle sharing in 60% cases. Varied systemic complications were observed. All of them had blood borne Infections(HIV in 60% cases,Chronic Hepatitis C in 80%,Chronic hepatitis B in10%). 20% of the patients had Chronic Hepatitis C related DCLD . Cardiovascular complications(native valve infective endocarditis)seen in 5 patients (50%),Pulmonary complication in 4 cases(40%) [Klebsiella pneumoniae pleural effusion in 1,Septic pulmonary emboli in 4],Neurological in 2 cases (20%)[CVA infarct in 1,CIDP in 1],Renal(Renal Failure) in 2(20%).Mortality was seen in 30% cases of which highest was seen with blood borne inections(20%) followed by infective endocarditis (10%) and Pulmonary emboli(10%).Infective endocarditis were prominent among users of heroin and contaminated needles and HIV-HCV coinfection among those undergoing needle sharing.

Table No: 1. Systemic Complications Of IV Drug Users.

Systems Involved	Percentage of cases	No. of Cases
Cardiovascular Infective Endocarditis	50	05
Blood borne infections	100	10
HIV	60	06
Chronic Hepatitis C	80	08
Chronic Hepatitis B	10	01
Pulmonary	40	04
Septic Pulmonary emboli	40	04
Pleural effusion	10	01
Neurological	20	02
Renal	20	02

Discussion :-

Intravenous drug use is associated with a wide range of systemic complications. In the current prospective series 10 consecutive complicated IDU cases were evaluated. All of them being male and blood borne infections were found in all of the cases (HIV in 60%cases,Chropnic Hepatitis C in80% cases and Chronic Hepatitis B in 10% cases)which can occur due to sharing contaminated needles, unsterile injection practices and compromised immunity . Cardiac complications(infective endocarditis) were found in 50% cases which is very high. This occurs because of repeated injection of bacteria and particulate contaminants directly into venous blood causing recurrent bacterimia and damage to the heart valves making IE (especially right sided) highly likely. Septic pulmonary emboli and Klebsiella pneumoniae pleural effusion seen in 40% cases, which can occur both, as a complication of IE where infected vegetations break off the heart valves causing pulmonary emboli, and due to repeated injections and contaminated needles which can introduce bacteria into the veins which causing embolisation through the right side of the heart and lodges in the pulmonary artery causing septic emboli and pleural effusion. CNS Complications were less (CVA -infarct in 10% cases).Also despite maximum possible treatment given 30% cases could not be survived of which most of them being due to bloodborne infections(20%) followed by native valve infective endocarditis(10%) and Pulmonary emboli((10%).A major drawback of our study is that limited number of patients were included in our study and as it is an ongoing study and more and more cases will be included later on.

According to a study conducted by Richard B.Jaffe etal pulmonary edema following heroin overedose,pulmonary infections,and septic pulmonary emboli were the common pulmonary complications ,infective endocarditis being the most common cardiac complication and Mycotic aneurysms and arterial occlusion were the vascular complication among the 28 patients included in their study[5].Mark C Bates et al. conducted a study on 462 patients admitted in Charleston area Medical Center between 2008 to 2015 with IE and concomitant illicit drug use which showed pattern of increase in mixed drug use mirrored increases in IE .[6] Anne O'Donnell et al conducted a study on fifty one patients of IV drug abusers at an inner city hospital over a 22 month period where they found that septic pulmonary embolism was most common pulmonary complication seen in 12patients(23.5%).[7] Indian studies are lacking in the literature.

Conclusion:-

IV Drug abuse leads to a wide range of systemic complications many of which are life threatening and preventable. North East Region of India needs a better preventive and positive health care delivery system to reduce the burden of menace of intravenous drug abuse ,routine screening of HIV,HCV,HBV, for high risk groups and high degree of suspicion for diagnosis of early complications among intravenous drug users , establishing harm reduction clinics with free needle exchange and opioid substitution therapy, promoting awareness and destigmatisation of addiction to improve early care seeking.

References:-

1.Stein MD.Medical consequences of substance abuse .Psychiatr Clin North Am1999;22(2):351-370
2.Magnitude of substance use in India.NDDTC,AIIMS report
3.Debnath M,Majumder Basu C(2023).”Drug Addiction :A Reflection on Youths of Tripura.”JETIR.ORG.April2023;10(4):2349-5162
4.Majumder Udayan;Das Joysree;Barman,Swapan Chandra etal.”Sociodemographic and clinical profile of drug treatment seekers attending the State Psychiatric Hospital and Drug De-addiction Center at Agartala,Tripura.”Indian Journal of Psychiatry63(1):p80-83,Jan-Feb2021
5.Jaffe R,Koschmann E.”Intravenous drug abuse :Pulmonary,cardiac and vascular complications”AJR.November2012;109(1)p107-111.
6.Bates MC,Annie F,Jha A,Kerns F.Increasing incidence of IV-drug use associated endocarditis in southern west Virginia and potential economic impact.Clin Cardiol.2019 Apr;42(4):432-437.
7.Donnell AE,Pappas LS.Pulmonary complications of Intravenous drug abuse:Experience at an inner city hospital,Chest.1988August;94(2):251-253.