Case Study

Unveiling the Health Consequences of a 55-Year-Old with Nubain, Alcohol, and Smoking Abuse

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Abstract

The case study describes a high-risk substance user adult patient with Nubain, smoking, and alcohol abuse. This research study tries to find out the effect of substance abuse on the patient's health and social functioning. Initially, the patient started with marijuana for fun with friends, which further led to Nubain injections, alcohol intake, and smoking. Due to prolonged consumption, the patient's body eventually developed an intolerance to these substances, resulting in severe health complications.

The patient was admitted to a nearby hospital in emergency with sudden severe abdominal pain. The patient was diagnosed with CBC, ultrasound, and x-ray to identify his condition. The complications were so serious that the patient needed the attention of a specialized doctor, including very low hemoglobin levels and melena.

Despite all these admissions and other medical interventions, there was no improvement in the patient's condition. The patient ultimately died due to substance use. This study identifies early intervention and comprehensive care as important in improving health and social outcomes. It points to the dangerous and lethal effects of substance abuse, hence the importance of prevention and timely medical interventions.

Keywords: Nubain injection, alcohol, smoking, health risks, substance abuse

Introduction

Substance misuse represents one of the key public health concerns. Misuse of drugs, consumption of alcohol, and tobacco misusing all include a category of serious health disorders such as problems of the heart, liver, and respiratory organs, among others. 2019 research showed that a combination of alcohol with opioids or cocaine raised health risks whenever dangerous conditions occurred in the process, such as issues related to heart conditions and liver diseases.[(7)] 2021 research outlines the risk of smoking, heavy drinking, and drug use for heart disease and serious organ damage.[(11)]

Nalbuphine: This is also known as Nubain, a semi-synthetic opioid. Although very effective in the treatment of pain described from moderate to severe,

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there's quite a high potential for abuse. In the cases where there is an abuse of Nubain, most especially with other depressants of the central nervous system, there are serious complications that can arise, and they include respiratory depression and impairment of various organs. These risks delineate how much the study of long-term effects is justified in substance abuse, particularly with the use of multiple substances. [6]

It therefore discusses a 55-year-old male patient who was exposed to severe multi-organ damage following long-term Nubain use in combination with alcohol and tobacco. It is a case, thus, to raise awareness of the danger of drug use. Early intervention and timely treatment need to be emphasized. By sharing this study, we would like to contribute to the discussions of substance abuse, show its long-term impacts, and press for better prevention and rehabilitation strategies.

Case Presentation

The patient had been taking Nubain for 20 years. Although rehabilitation was attempted, the patient continued using Nubain. Over time, he developed high blood pressure, which he attributed to medication. Consequently, he decided to stop Nubain. However, despite discontinuing the medication, the patient continued to consume alcohol and cigarettes.

In the middle of the night, he was taken to the hospital as the patient had acute stomach ache. The doctors wanted to perform an endoscopy on him, but his red blood cell count was too low. The patient needed a hematologist before the operation, but such specialist was not available. So he was transferred to another hospital where Internists & Hematologists were available.

One of his throat veins was swollen when the doctors performed the endoscopy. They decided to attend to the swollen vein first, as that might lead to bleeding during the endoscopy since the patient was suffering from pancytopenia and needed to be handled with care. While the patient was recovering from the throat procedure, he started to develop blood in his stool. During this time, the doctors couldn't do anything more, which included the endoscopy and the operation, because the patient needed a blood transfusion for the surgery. While recovering from the procedure, the patient's abdomen starting swelling up with fluid accumulation.

The doctor removed some of the fluids to relieve the patient's pain. The patient continued these regular consultations for proper medication until the doctor estimated that the patient had about seven months to live.

The patient was admitted to the hospital with low hemoglobin levels and melena. All possible laboratory tests were conducted on him. The health condition of the patient did not improve even after medical intervention, and he died. This is a very serious consequence of substance abuse, which indicates the importance of early intervention and comprehensive care to reduce the burden of disease and social problems.

Methods

The laboratory tests and procedures performed to diagnose the disease of the patients include: A CT scan was done to view internal organs, bones, and soft tissues and give comprehensive information about the condition of the patient and any abnormalities and injuries sustained. Chest X-ray was used to treat and diagnose pathologies in the lungs, heart, and chest wall and helped in diagnosing infections and diseases of the lung and heart conditions. A CBC measures several components of blood, including red and white blood cells, hemoglobin, and platelets, to detect infections, anemia, and other disorders.

Blood chemistry tests included FBS, which was utilized for the diagnosing and monitoring of diabetes; HBA1C, for reflecting average blood glucose level over the past 2-3 months; and SGOT and SGPT for assessing liver functions and in detecting liver damage. BUN and creatinine were used to assess kidney functions.

Additional tests included electrolyte tests (sodium and potassium) to assess fluid balance, kidney functions, and heart health. Alkaline phosphatase testing was done to diagnose liver and bone diseases, while total protein testing was carried out to assess overall health and diagnose various conditions. Coagulation tests evaluate the blood's ability to clot, diagnosing bleeding disorders and monitoring anticoagulant therapy.

The medications administered to the patient included sofosbuvir, omeprazole, spironolactone, and propranolol.

Results

Diagnostic Findings: The CT scan report shows non-obstructing nephrolithiasis on the right, indicating kidney stones in the right kidney that were not causing any blockage. There was a renal cortical cyst on the left, which is a cyst in the cortex of the left kidney. The patient had hepatosplenomegaly, meaning there was an enlargement of both the liver and spleen. Additionally, there was an atheromatous abdominal aorta, indicating the presence of atherosclerosis (plaque buildup) in the abdominal aorta. The most important finding is the suggestion of diffuse liver parenchymal disease with signs of cirrhosis**,** including hepatic foci that may indicate hepatocellular carcinoma.

The fecal analysis result showed many bacteria and moderate yeast cells, which could indicate an infection. The blood chemistry report shows a fasting blood sugar (FBS) result of 5.82 mmol/L, which is slightly elevated compared to the normal values for adults (3.89 to 5.8 mmol/L). The coagulation tests show a prothrombin time (Protime) result of 13.0 seconds, within the normal range of 11.5-15.5 seconds, but another value of 16.4 seconds is slightly above the normal range. The activity result is 66.5%, which is below the normal range of 78-106%.

The chest PA X-ray report showed new horizontally oriented linear opacities in the left middle lung field, suggesting subsegmental atelectasis (partial collapse of a small area of the lung) or non-specific parenchymal fibrosis (scarring of lung tissue) in the left lung. The blood chemistry test showed a creatinine result of 5.47, which is significantly higher than the normal range for both males and females, indicating impaired kidney function. The total bilirubin result was 19.55 µmol/L, which is slightly elevated compared to the normal range of 0-17.1 µmol/L.

The hematology report shows a hemoglobin (HGB) result of 78 gm/L, which is significantly lower than the normal range for both males (130-180 gm/L) and females (120-160 gm/L), indicating severe anemia. The urinalysis results indicate the presence of blood and pus cells in the urine. which could suggest a urinary tract infection (UTI) or other underlying conditions. The presence of many bacteria further supports the possibility of a UTI.

The last CT scan reported a diffuse liver parenchymal disease with signs of cirrhosis, including ill-defined, hypodense hepatic foci in segments IVB and VI, which may indicate hepatocellular carcinoma (LIRADS V). Additionally, round, rim-enhancing, hypodense hepatic foci in segments VII and VIII could be part of the same neoplastic process. There are several worrisome findings for metastasis if a primary malignancy is confirmed, such as thrombus formation within the extrahepatic portal vein and possible thrombus formation within the left port venous branches, a pleural-based nodule in the left lung, retroperitoneal and periportal lymphadenopathy, ascites, dilated portal and splenic veins, and collateral vessel formation. Suggesting portal venous hypertension. Portal vein thrombosis and arterioportal shunting are also noted.

Other findings include hepatic cysts in segments VI and IVB, calculous cholecystitis, a renal cyst in the left kidney (Bosniak I), an umbilical hernia, bilateral minimal pleural effusion (slightly progressing, more on the left), cardiomegaly, a normal-sized prostate with concretions, subcutaneous edema, non-specific extra-testicular calcifications in the left testicle, degenerative spondyloarthropathy with L1-L2 disc disease, and an atherosclerotic aorta, which eventually lead to the death of the patient.

Figure 1: Enlarged and prominent lymph nodes (encircled) are noted in the paraaortic region.

Discussion

The results of this study point to the serious health consequences of the combined use of Nubain, alcohol, and smoking. The Child-Pugh score is determined by scoring five clinical measures of liver disease and the possibility of eventual liver failure. Class A (5-6 points) least severe liver disease, one to five-year survival rate: 95%. Class B (7-9 points) moderately severe liver disease, one to five-year survival rate: 75%. Class C (10–15 points) is the most severe liver disease, with a one- to five-year survival rate of 50%. [12] Based on the medical certificate, the patient has chronic liver disease CP B (7) due to alcoholic liver disease.

Model for end-stage liver disease (MELD) scores range from 6 to 40, depending on the severity of liver disease. A MELD score greater than or equal to 10 may be referred to a hepatologist or liver specialist. MELD scores are meant to assess the risk of death within three months, which may support a decision to recommend a liver transplant to avoid this high risk. [13] Based on the medical certificate, the patient has chronic hepatitis C, with MELD Na 10.

The patient also has portal hypertension due to decreased platelets, splenomegaly, and recent bleeding esophageal varices, which further underlines how critical the state of the patient was. Among the findings were an atheromatous abdominal aorta consistent with atherosclerosis, a known complication of drug misuse.

These facts are supported by the study in 2019, which further stated that combining alcohol with opioids and cocaine, among other drugs, might result in hazardous health effects characterized by cardiovascular disorders and liver damage. It can be analyzed from the case study that the abuse of Nubain, combined with alcohol and smoking, is responsible for severe cardiovascular and hepatic complications. Similarly, a study in 2021 said that smoking, heavy alcohol drinking, and drug abuse result in major health problems, including cardiovascular diseases (CVD), which tally with the symptoms presented by the patient. [7]

Nubain, or nalbuphine hydrochloride, is a narcotic medication used to treat moderate to severe pain, such as post-surgery or childbirth. The usual dose is 10 mg for an average adult weighing about 70 kg, administered subcutaneously, intramuscularly, or intravenously, and repeated every 3 to 6 hours as needed. [1] One innovation enhancing pain control is the nasal spray form of Nubain called Apain, a noninvasive and effective alternative to intramuscular albuphine. [2]Some recovery rooms use a device to administer 5 mg of morphine as additional analgesia. [3]

Nalbuphine, a synthetic opioid in clinical practice for over 40 years, interacts with both the μ-opioid and the k-opioid receptors of the receptor. The Thai FDA has recognized its effectiveness in treating moderate to severe pain. [4] Though its mixed agonist/antagonist properties were believed to reduce its abuse potential, dependence has been reported among bodybuilders misusing it to manage pain and enhance their training. [5]

Despite clinical benefits, nalbuphine is dangerous, especially when combined with other brain-acting drugs, and is prescribed cautiously due to the risk of severe respiratory depression, particularly when starts or when doses increase. [6]

Kappa receptor (KOR) function in neurocircuits of addiction. This simplified scheme represents a sagittal section of a rodent brain illustrating brain regions involved in drug abuse (Circles). Receptor density is indicated for each region and black lines show the opioid-receptor-regulated pathways identified in the studies discussed in this review.
KORs in excitatory amygdala (AMG) neurons projecting to the bed nucleus of the stria terminalis promote stress and anxiety. KORs in the nucleus accumbens input negatively regulates motivational processes, modify the hedonic value of nociceptive events, and shape motivational behaviors in response to painful experiences. KORs in AMG are related to inducing the affective state of addiction

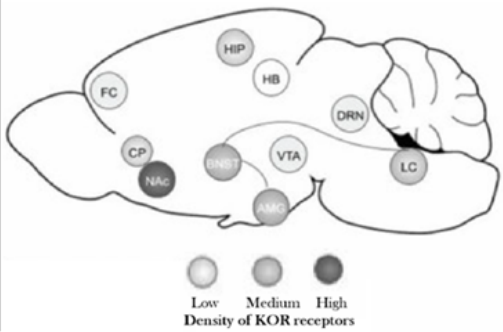

Figure 2: Kappa receptor (KOR)

Recent research reconsiders nalbuphine's merits amid the opioid addiction epidemic, investigating its potential to reduce stronger opioid use. KORs located in specific brain regions modulate motivation and nociceptive stimuli. For instance, KORs in the nucleus accumbens assist in motivation and pain, while in the amygdala they relate to addiction centers. [10]

A 2022 study found that children and adolescents who frequently smoked and drank alcohol were happier with peer relations, likely due to social experiences from substance use. This aligns with reports of increased peer time among Nubain, smoking, and alcohol users.

Studies from 2021 identified opioid addiction disorder as a public health concern, with risk factors including genetic changes, bipolar disorders, and substance-related behavioral disorders. [11]

Health problems arise from combining Nubain with opioids or cocaine, as explained in a 2019 study. The pattern of Nubain use with tobacco and smoking is linked to liver impairment. cardiovascular disorders, and even extreme drug abuse. [7]

Studies quantified the negative effects of heavy alcohol consumption and smoking while taking drugs, raising cardiovascular disease (CVD) risks. Abdominal aortic atherosclerosis is diagnosable from a CT scan due to aorta hardening from drug misuse. Research from 2021 indicates drug users without CAD are at a higher risk of ischemic heart disease, often caused by coronary heart disease. [8]

Historically, alcohol mixed with opioids, morphine, or cocaine treated many diseases, leading to. circulation problems and liver trouble. Addiction quickly manifested withdrawal symptoms as the drugs started to wear off. The interaction between alcohol and drugs remains a mystery. [7]

The patient had alcoholic liver disease and chronic hepatitis C, advancing to chronic liver disease CPB with a 10 MELD Na score. The liver is diffusely affected with cirrhosis and suspected hepatocellular carcinoma. The situation worsens with intrahepatic biliary ducts, together with thickened walls, reducing clearance. The patient also has potential bleeding esophageal varices, white blood cells, and a loss in platelet size. indicating portal hypertension.

Implications of the Findings:

The outcomes of the study warrant these important considerations. In particular, the association of Nubain or polydrug use involving alcohol and smoking with debilitating maladies, particularly cardiovascular diseases and liver insults, leads to the suggestion that these patients should be evaluated for multiple substance use, which enhances the quality of health care provided. It is important to comprehend these relationships since they determine the effectiveness of prevention and treatment approaches. [8]

The Government of India's Ministry of Social Justice and Empowerment, in its 2019 report under the National Drug Dependence Treatment Centre, observed that there is a significant use of substances. Substance abuse could be best approached by adopting evidence-based preventive strategies, which were suggested to the policymakers. [7]

Policies to promote public health should aim at specific preventive measures against using multiple drugs at a given time. This study expands the current body of knowledge by bringing forth new dimensions to these relationships to direct further investigations and policy formulation processes.

Limitation of the Study:

Even though much valuable information is obtained from this study, it has several limitations. The single sample size may not allow the generalization of findings to a wider population. Further, data are self-reported, introducing possible inaccuracies in reporting. No control group is included in this study design; such a design would better isolate the effects of Nubain, alcohol, and smoking abuse. These limitations need to be overcome in future research, which should involve larger and more diverse samples, coupled with more robust study designs. The findings could also be confounded by some variables that were not fully controlled, such as the presence of other underlying health conditions.

Conclusion

This study highlights the significant health risks associated with the combined use of opioids, alcohol, and smoking—a synergistic "triple threat"

to health. Professionals in forensic and related fields should recognize that individuals often engage in polydrug use, which can complicate case analyses. Acknowledging this overlap is crucial for accurately assessing and addressing such situations.

Healthcare providers must proactively engage with patients about the concurrent use of multiple substances, enabling them to better understand patients' behaviors and offer appropriate interventions. Additionally, preventive measures are essential. Public health practitioners play a pivotal role in raising awareness about the dangers of polydrug use through targeted campaigns and educational initiatives.

However, the study's impact could have been enhanced with a more diverse participant pool, encompassing individuals from varied backgrounds. Future research should prioritize inclusivity to provide a comprehensive understanding of the risks associated with the simultaneous use of these substances, ultimately informing more effective interventions and policies.

Implications for forensic professionals:

This study will give valuable help to forensic professionals, especially in forensic medicine, by stressing the severe complications and combining Nubain, alcohol, and smoking. This study will emphasize the importance of thorough assessments in evaluating individuals suspected of substance abuse.

Forensic experts involved in substance abuse can use these findings to better understand the physical and psychological effects of polysubstance use, especially in cases of addiction, overdose, or criminal behavior. Forensic practitioners should recognize the risk of multiple substances, which could influence decision-making in cases such as determining the cause of death. Forensic professionals can make more informed, accurate assessments and legal evaluations by considering the complex interactions between substances.

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Ethical Clearance: There is no ethical clearance required for this study, as it does not involve any procedures or data that necessitate approval from an ethics committee.

Declaration of conflicts of interest statement: I declare that I have no conflicts of interest related to this case study. All information and findings presented are based solely on the data, and the documents are our personal family copies intended solely for our use.

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