ORIGINAL RESEARCH PAPER

Anaesthesiology

KEY WORDS: Hepatitis C, Liver transplant, Blood transfusion

ANAESTHETIC MANAGEMENT OF A CASE OF HCV-RELATED LIVER CIRRHOSIS AND SICKLE CELL ANEMIA POSTED FOR ORTHOTROPIC LIVER TRANSPLANT.

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ABSTRACT

Introduction: Hepatitis C Virus (HCV) is a hepatotropic RNA virus, with a propensity to affect the liver. HCV causes acute hepatitis which is mostly subclinical and gradually evolves into chronic hepatitis in about 80% of those infected. End-stage liver disease caused by HCV has become the most common indication for orthotopic liver transplantation (OLT)3,4 Mortality is higher when it is associated with Sickle cell Disease Meticulous peri-operative management avoiding all the risk factors and preventing all the complications can result in a better outcome giving a new life to a moribund.

Case report: A 36 year old male with 56kgs was diagnosed with sickle cell anaemia in childhood. patient got infected with Hepatitis C virus during multiple blood transfusion. The patient was induced under general anaesthesia and put on SIMV-VC mode of ventilator. Both the radial arteries were cannulated and the right heart was catheterised with Swan Ganz pulmonary artery catheter. The patient was transfused with 5 units of albumin,14 units of PCVs,5 units FFPs and 8 units of PRC by TEG guided component transfusion and a total of 16 litres of infused and a total output of 15 litres was achieved.The patient was maintained intra-operatively with infusions of Atracurium,Fentnyl and Noradrenaline supplemented by Oxygen,Inhalational agent Isoflurane,N2O and Midazolam was given during anhepatic phase.Inj.calciumgluconate, Inj.soda bicarbonate, Inj.MP1gm, Inj.Mannitol, Inj.Albumine were required dutring intra operatively. Ascitic fluid waS 2 liter.

Conclusion: Liver cirrhosis is a devastating disorder affecting almost every single organ of the body and the metabolism of drugs and other anaesthetic agents are also affected major fluid was shiftedduring liver transplant and demanded massive blood transfusion.Meticulous peri-operative management can result in giving a new life to a moribund patient.

INTRODUCTION:

Hepatitis C Virus (HCV) is a hepatotropic RNA virus, with a propensity to affect the liver. It is recognised as a major public health problem responsible for chronic liver disease. It is primarily transmitted via the parenteral route which includes injection drug use, blood transfusion, unsafe injection practices, and other healthcare related procedures[1]. HCV causes acute hepatitis which is mostly subclinical and gradually evolves into chronic hepatitis in about 80% of those infected[2]. The prevalence of Hepatitis C Virus (HCV) infection in the general population is estimated to be around 0.5%–1.5%[3]. End-stage liver disease caused by HCV has become the most common indication for orthotopic liver transplantation (OLT)[4,5].Reinfection of the allograft with HCV virus results in hepatitis in 50%–80% of these patients. Morbidity and mortality is high among HCV-positive liver transplant recipients[6].Mortality is higher when it is associated with Sickle cell Disease Meticulous peri-operative management avoiding all the risk factors and preventing all the complications can result in a better outcome giving a new life to a moribund.

Case Report:

A 36 year old male with 56kgs wasdiagnosed with sickle cell anaemia in childhood. Multiple blood transmissions were carried out and the patient got infected with Hepatitis C virus and he was presented first time 6 years ago with the complain of abdominal pain and yellowish discolouration of skin and urine and finally he developed distension of the abdomen and altered sensorium for which he was hospitalized and on investigation was found to have HCV-related liver cirrhosis.Multiple hospital admissions for fever & jaundice and multiple ascetic tapping were carried out.

A preoperational full abdominal computed tomography (CT) scan reported shrunken right lobe of liver with irregular and nodular out line and hypertrophied left lobe of liver suggesting parenchymal disease. An ultrasound of the abdomen showed altered liver echogenicity and moderate Ascites. Pre-operatively, the patient's laboratory test results were as follows: Haemoglobin-6.8 g/dl, Bilirubin-9.8 mg/dl, Indirect bilirubin : 3.3 mg/dl,Direct bilirubin - 6.50 mg/dl, SGOT - 77 U/L , SGPT- 23 U/L , ALP- 102 U/L Platelet: 1,13,000 /l,PT- 17.4, INR-1.57,APTT-39.3.

The patient was induced under general anaesthesia and put on SIMV-VC mode of ventilator with appropriate parameters according to the age, weight and gender.Both the radial arteries were cannulated and the right heart was catheterised with Swan Ganz pulmonary artery catheter to monitor IBP,CVP,PAP,core blood temperature.Both Vigilance and Edwards monitors were attached to monitor parameters like C.O,C.I,SV,SVV,SVR,SVO2.

Intra-operatively the patient was monitored with EtCO2,pulse rate,6 lead ECG, hourly urine output, blood loss and serial arterial blood analyse for acidosis,electrolyte imbalance,blood sugar levels and haematocrit. FLO TRAC was attached to measure IBP, CVP, PAP, C.O,SV, SVV and SVR. The patient was transfused with 5 units of albumin,14 units of PCVs,5 units FFPs and 8 units of PRC by TEG guided component transfusion and a total of 16 litres of infused and a total output of 15 litres was achieved.The patient was maintained intra-operatively with infusions of Atracurium,Fentnyl and Noradrenaline supplemented by Oxygen,Inhalational agent Isoflurane,N2O and Midazolam was given during anhepatic phase.Inj.calciumgluconate, Inj.soda bicarbonate, Inj.MP1gm, Inj.Mannitol, Inj.Albumine were required dutring intra operatively.Ascitic fluid waS 2 liter.

TABLE 1: Timing of intra operative event.

Event	Time
Induction time	8:10 am
Incision time	9.05am
Portal clamp time	2:42pm
Liver explanation time	2.50pm
IVC clamp time	2:57 am
Anastomosis start time	3.05 pm
Anastomosis end time	3.25 pm
Total ischemia time	8 hrs. 45 min

The Patient was shifted to Post-Liver Transplant ICU as intubated and kept on SIMV-PC for initial 2hrs. Immediate Post-Operative ABG Analysis was done. Urine output and vitals were monitored and managed appropriately.The patient was then shifted to CPAP-PSV mode after 2hrs and finally extubated after 4hrs. Immunosuppressive Therapy was started immediate post-operatively and on the 4th day,the patient was shifted to Post-Liver Transplant ward.

CONCLUSION:

Liver cirrhosis is a devastating disorder affecting almost every single organ of the body and the metabolism of drugs and other

anaesthetic agents are also affected major fluid was shiftedduring liver transplant and demanded massive blood transfusion.Sickle cell anaemia may manifest as various crises and may be fatal if the risk factors like acidosis,hypotension,hypothermia,hypo perfusion etc.are not identified and not managed urgently.Meticulous peri-operative management can result in giving a new life to a moribund patient.

Abbreviation list:
CT - Computed Tomography
FFP- Fresh Frozen plasma
HCV-Hepatitis C Virus
OLT- Orthotopic Liver Transplantation
PCV- Packed cell volume,

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REFERENCES

1. Favero MS, Alter MJ, Tokars JI, Arduino MJ. Dialysis Associated Infections and their Control. In: Benett JV and Brachman PS, editors. Hospital Infections, 4th edition, Philadelphia: Lippincott-Raven, 1998; 370-7.
2. Forman MS, Valsamakis A, Versalovic J, Carrol KC, Funke G (2011) Hepatitis C virus. In: Murray's Manual of Clinical Microbiology. 10th ed. Washington: American Society of Microbiology Press 1437-1455.
3. Christdas J, Sivakumar J, David J, Daniel H, Raghuraman S, et al. (2013) Genotypes of hepatitis C virus in the Indian subcontinent: A decade long experience from a tertiary care hospital in South India. Indian J Med Microbiol 31: 349-353.
4. Wright TL. Liver transplantation in patients with chronic hepatitis B and C. In: Maddrey WC, Sorrell MF, editors. Transplantation of the liver. 2nd ed. Norwalk: CT:Appleton & Lange; 1995. p. 477.
5. Ghobrial RM, Farmer DG, Baquerizo A, et al. Orthotopic liver transplantation for hepatitis C: outcome, effect of immunosuppression and causes of retransplantation during an eight-year single center experience. Ann Surg. 1999;6:824–833. [PMC free article] [PubMed]
6. Berenguer M, Lopez-Labrador FX, Wright TL. Hepatitis C and liver transplantation. J Hepatol. 2001;35:666–678. [PubMed]