**Who pays the price? Prevalence of bacterial resistance, leads to MDR bacterial sepsis as the single commonest contributor to mortality among immunosuppressed transplant recipients in the Indian sub-continent. A single centre study.**

P. T. Cherian1, R. A. Narkhede1, F. S. Mahmood1, R. N. Iyer2, M. Sathyanarayanan3, R. Raya3, M. Rela1

 1Department of HPB Surgery and Liver Transplantation,

**2**Department of Microbiology and Immunology,

**3**Department of Anaesthesiology, Global Hospitals, Hyderabad, India

**Introduction:**

 The causes of mortality after liver transplantation differ in west compared to South East Asian population where infective complications play a major role in short term mortality. The practice of indiscriminate antibiotic use by the medical practitioners as well as poor regulation of over the counter drug sales is thought to contribute to an unacceptably high prevalence of bacterial resistance patterns in south East Asia. To gain understanding of current trends we studied the recipient mortality in a mature transplant unit.

**Objective:**

 We tried to find the association between mortality and infective complications, their microbiological details including antibiotic resistance and pre-operative patient factors.

**Methods:**

 Sixteen of 124 transplant recipients operated over a 24 month period (Jan 2013 to Dec 2014), who had early (in-hospital) mortality, were analysed retrospectively. This included children and acute liver failure patients. The demographic details, diagnosis, indications for transplant, were retrospectively collected from pre-transplant ‘work up’ database while intra-operative details, post operative complications were collected from the inpatient hospital case records. The detailed data regarding microbiological profile was gathered from computerised records of microbiological cultures and antibiotic sensitivity. The infective morbidity was analysed for the microbiological pattern of complications and antibiotic sensitivity.

**Results:**

 Sixteen of the 124 patients operated for liver transplantation who had early mortality were retrospectively reviewed. The mean age at transplant was 51 years (range 6 months to 68 years) and the mean BMI was 27.8, (range 14.2 to 33.7). 14 patients underwent LDLT while 2 underwent DDLT. One patient underwent LT for acute liver failure. Except 1 child, all were adults. The mean graft weight to recipient weight ratio was 1.22 while the range was 0.71 to 4.6.

 The indications for transplantation were alcoholic liver disease (33.33%), NASH (58%) and viral liver disease (41%) including HBV and HCV which had equal incidence in the patients who had early mortality while 1 had biliary atresia and 1 had cryptogenic cirrhosis. Incidence of preoperative refractive ascitis (58%) and hepatic encephalopathy (66.6%) was higher as compared to renal dysfunction (33.33%), spontaneous bacterial peritonitis (16.6%) and upper GI bleed (25%). Diabetes mellitus was associated with 50% patients while 25% had hypertension.

 Intra operatively 43.75% patients had vascular venous reconstruction for outflow but none had major vascular complication like bleed or vascular graft thrombosis. 62.5% patients had mild ascitis while 37.5 % patients had moderate to severe ascitis. The average blood loss was 2076 ml whereas range was 120 ml to 8000 ml but all recipients had intra-operative blood transfusions with an average of 3 units of packed red blood cells.

 Postoperatively 2 patients (12.5%) had postoperative bleed which required re-exploration. None of them had postoperative bleed attributed to vascular reconstruction. 75% patients of the cohort had septic complications, 65.2% had renal dysfunction, 37.5% had acute cellular rejection (ACR), 25% patients had neurological complications, 31.25% had cardiac complications and 12.5% had biliary complications. In patients with septic complications postoperative renal dysfunction was most common and was associated with 75% patients closely following ACR (41.6%). Fatal sepsis was localised to blood (41.6%), followed by lung (33.33%) and biliary tree (25%).

 Seventy five percent patients had isolated bacterial sepsis, 25% had combined fungal and bacterial while 8.33% patient had isolated fungal sepsis. From 19 positive cultures 7 bacterial species and 2 fungal species were isolated, of which carbapenum resistant *Klebseilla pneumonae* was most common bacteria isolated while *candida* was the most common fungal species isolated in patients with sepsis. Carbepenum resistant *Klebsiella* was found in 50% of patients died of sepsis which was common in post operative renal dysfunction, followed by extended beta lactamase producing *Escheriasea coli* and *candida species*.

**Conclusion:**

 Current study identified infective complications, predominantly bacterial, as leading cause of mortality (75%). Sepsis was commonly found in the blood stream (41.6%) while Carbapenum resistant Klebsiella was the commonest pathogen, present in over 50% of our cohort. Since small sample size was the limitation of study; large multicentre studies are necessary.