#### Unmasking the danger: Investigating factors predisposing liver transplant recipients to invasive fungal infections

**Introduction:**

Invasive fungal infections (IFI) contribute significantly to post-operative morbidity and mortality following Liver transplantation (LT). Identification of risk factors will guide clinicians to initiate prophylactic therapy.Aim of our study is comprehensive analysis of post LT IFI over a three-year period with focus on clinical predictors and patient outcomes.

**Materials and Methods:**

We conducted a retrospective cohort study to calculate incidence of IFI in adult and pediatric LT recipients between 2020 to 2023 at our centre. Patients who were diagnosed with culture-proven fungal infection of blood, body fluid, skin, soft tissue, and viscera were included. Data was collected on demographics, disease characteristics, operative details and post-operative course. Risk factors for development of IFI and risk factors for mortality among IFI  were identified by univariate and multivariate analysis.

**Results:**

364 patients underwent LT in the stipulated period. 24.5% (n=89) were female and 27.2% (n=99) of recipients were children. 27 patients underwent LT for ALF; rest for DCLD. IFI was diagnosed in 8.5% (n=31); the most common organism isolated was Candida albicans (32.2%), followed by non-albicans Candida (25.8%) and Aspergillus(19.4%). Body fluids (32.3%)were the most commonly reported site of IFI followed by visceral(25.8%),skin & soft tissue (19.4%). When compared with non-IFI group, IFI group had significantly longer hospital stay (40 d vs 17 d, p<0.001), longer ICU stay(p<0.001),higher perioperative mortality rate (29% vs 4.5 %, p<0.001) and higher overall mortality rate (35.5% vs 6%,p<0.001). On multivariate analysis, risk factors for development of IFI were found to be female gender (OR- 6.8(1.3,37), p=0.026), postoperative Acute kidney injury(OR- 20.0 (4.6,87.6) p=<0.001), Peri-operative therapeutic plasma exchange (TPE) (OR- 16.2(2.3,113) p=0.004), and Roux en Y Hepaticojejunostomy (OR- 49 (5.2,434; p<0.001). On univariate analysis,predictors for mortality in invasive fungal group are Diabetes Mellitus,Early allograft dysfunction,Postoperative renal replacement therapy. Among patients with IFI, there were no factors predictive of mortality on multivariate analysis.

**Conclusion:**

IFI in LT recipients contributes to post operative morbidity and mortality. Also, IFI significantly prolongs hospital and ICU stay.  Patients with perioperative TPE, post-operative renal failure and bilioenteric anastomosis are at higher risk of developing IFI, necessitating antifungal prophylaxis in these select group. The type of organism and site of IFI does not predict mortality.