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Paper Poster Session VI

Invasive fungal infections in immunocompromised patients

Risk factors for invasive pulmonary aspergillosis (IPA) in kidney-transplant (KT) recipients: an international case-control study

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Objectives: IPA is associated to a high mortality among KT. This study pretends to identify specific risk factors for IPA in this population.

Methods: A retrospective case-control (1:1) study that included 112 cases of probable or proven IPA (according to 2008 revised EORTC-MSC criteria) and its respective controls from 29 hospitals of 10 countries was performed. Control subjects were matched for center and timing. Risk factors for early (≤180 days after KT) and late (>180 days) IPA were analyzed separately. Conditional logistic regression was developed to identify independent risk factors. Previous lung injury category was created to combine influenza virus infection, community acquired pneumonia, healthcare-associated pneumonia and mechanical ventilation-related pneumonia.

Results: 50 cases of early and 62 of late IPA and their controls were included in the study. Global mortality was 35% at 6 months from diagnosis of IPA and 49% of survivors permanently returned to dialysis. Mean length of hospital admission for KT (26 vs. 18 days; p=0.0002), need for post-transplant dialysis (54% vs. 21%; p=0.000), acute allograft rejection (52% vs. 15%; p=0.000), post-transplant respiratory tract *Aspergillus* colonization (4% vs. 0%; p=0.026), bacteremia (28% vs. 4%; p=0.000), cytomegalovirus (CMV) disease (38% vs. 9%; p=0.000) and previous lung injury category (34% vs. 8%; p=0.000) were risk factors for early IPA. Need for post-transplant dialysis (OR 2.61; p=0.003), previous lung injury category (OR 6.14; p=0.001), bacteremia (OR 4.15; p=0.013) and CMV disease (OR 2.83; p=0.034) were identified as independent risk factors for early IPA by multivariate logistic regression analysis. Chronic pulmonary obstructive disease (16%vs.5%; p = 0.016), hepatitis C virus infection (10% vs. 2%; p = 0.027), length of admittance to the intensive care unit (98 days vs. 9 days; p = 0.0024), post-transplant respiratory tract *Aspergillus* colonization (6% vs. 0%; p = 0.005), CMV disease (30% vs. 12%; p = 0.002), bacteremia (32% vs. 7%; p = 0.000), previous lung injury category (37% vs. 8%; p = 0.000) and post-transplant *de novo* solid or hematologic malignancy (14%vs. 4%; p = 0.025) were risk factors for late IPA. Previous lung injury category (OR 8.45; p=0.000), bacteremia (OR 5.65; p=0.000) and CMV disease (OR 3.01; p=0.014) were independent risk factors for late IPA in the multivariate logistic regression analysis.

Conclusions: Impaired renal function immediately after transplantation and graft rejection were risk factors for early IPA. Co-morbidities as hepatitis C virus infection or intensive care unit admission were risk factors for late IPA. Severe (bacteremia) or opportunistic (CMV disease) infections, influenza infection, different types of pneumonias and respiratory tract *Aspergillus* colonization were risk factors for both early and late IPA. This study identified a group of KT recipients that might beneficiate of antifungal prophylaxis or immunosuppression reduction to avoid the development of IPA.