40 NEBULIZED AMPHOTERICIN B PROPHYLAXIS IN IMMUNOCOMPROMIZED PATIENTS TO PREVENT INVASIVE PULMONARY ASPERGILLOSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background Invasive pulmonary aspergillosis (IPA) is one of the major contributing factors increasing morbidity and mortality in immunocompromized patients. Nebulized amphotericin B (AMB) has been studied as a method for prevention of IPA. However, most published studies lacked a consistent conclusion. This systematic review evaluated the efficacy and safety of prophylactic inhalation of AMB for the prevention of IPA in selected immunocompromized patients (cancer/chemotherapy, solid organ transplant lung/heart).

Methods An electronic database search was conducted including published and unpublished papers in MEDLINE and Cochrane databases together with international conference proceedings and bibliographies of major articles. Randomized control trials and observational studies (comparative/non-comparative) comparing nebulized AMB versus placebo were included. Two independent reviewers assessed and extracted the data from included studies.

Results A total of 37 studies were included in the qualitative synthesis, of which 17 were analyzed quantitatively in the meta-analysis. Incidence rates of IPA and IPA-related mortality were significantly lower with the use of prophylaxis nebulized AMB, with risk ratio (RR) 0.38 (95% CI 0.28–0.51, $p < 0.00001$) and RR 0.54 (95% CI 0.33–0.91, $p = 0.02$), respectively. The rates of side effects were 25% and 40% in comparative and non-comparative studies. Significant side effects promoting stopping nebulization occurred in 6.6% and 4.8%, respectively.

Conclusion This analysis found a significant protective effect of nebulized AMB in preventing IPA and IPA-related mortality in immunocompromized patients.

41 ASSOCIATION BETWEEN POSTOPERATIVE INFECTION AND BLOOD TRANSFUSIONS IN CARDIAC SURGERY IN KING FAISAL CARDIAC CENTER, 2016 TO 2019

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Background Blood transfusion is a commonly used therapy in cardiac surgery, whether it is given during the surgery or in the intensive care unit. Because of this alarming number, it is necessary to evaluate the risk and complications that patients are exposed to once transfusion therapy is applied. Postoperative infection in cardiac surgery patients has been linked to patient outcome. Nosocomial pneumonia, surgical site infection, mediastinitis, bacteremia, and sepsis are common infectious processes affecting the outcome. In the King Faisal Cardiac Center (KFCC), the liberal use of blood transfusions has been raising questions on the outcomes of patients. In an attempt to decrease the use of transfusions,

it is essential to understand the risk and complications associated with them. Postoperative infection is the main complication that causes most concern. We aimed to determine the effects of blood transfusion on postoperative infection in cardiac surgery patients and to assess the benefits or negatives of our large transfusion rate at the KFCC from January 2017 to January 2019.

Methods We did a retrospective cohort study of all patients aged older than 18 years who underwent cardiac surgery at KFCC from January 2017 to January 2019. Data were analyzed using the statistical package IBM SPSS 22. Categorical variables were reported as percentages, while numerical variables were reported as means and medians. P values less than 0.05 were considered significant.

Results 197 was the sample size. Mean age was 57.64 years and body-mass index (BMI) was 28.91. 93.4% of patients had blood transfused and 31.98% had postoperative infection. Comparing transfused and non-transfused patients, hemoglobin (Hb) on discharge values and postoperative infection were similar; only preoperative Hb was significantly different ($p < 0.0053$). Comparing patients receiving 1–2 units of red blood cells (RBCs; 48%) and more than 2 units of RBCs (52%), there was also no significant difference in postoperative infection. Patients with postoperative infection had a mean HbA1c of 8.16, while non-infected patients had a mean HbA1c of 7.33.

Conclusion Blood transfusion was not significantly linked to postoperative infection and discharge hemoglobin. The findings show us that giving blood has not increased or decreased the risk of infection. Therefore, it is safe to say that, regarding postoperative infection and discharge Hb, we are transfusing too much blood and using up resources for outcomes that could have been achieved otherwise. Although our curiosity for the high infection rate has still not been answered completely, we assume HbA1c plays a major role because of the high prevalence of diabetes, and especially uncontrolled diabetes, in our population.

42 THE EFFECT OF STATIN TREATMENT ON GLYCEMIC PROFILE

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Background Patients who are at risk for atherosclerotic cardiovascular diseases will start statin therapy as primary prevention to lower the low-density lipoprotein (LDL) level. However, the use of statins may induce new-onset diabetes and increase the HbA1c level. A meta-analysis of nine randomized clinical trials concluded that statins cause a modest increase in HbA1c levels by 0.12%. Different statins exert different effects. A cohort study aimed to examine the effect of different statins on the risk of new-onset diabetes, and concluded that atorvastatin, rosuvastatin, and simvastatin were associated with significantly higher risks of incident diabetes compared with pravastatin. Additionally, a randomized trial assessing the effect of high-dose statins on fasting plasma glucose (FPG) levels and HbA1c levels compared atorvastatin 80 mg with rosuvastatin 40 mg and found that atorvastatin 80 mg was associated with a significant increase in HbA1c level by 4 units. This study aimed to assess the