

A Retrospective Study Comparing Mortality Rates Between Vaccinated and Unvaccinated Kidney Transplant Recipients

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Background

- As of May 25, 2022 an estimated 524,339,768 cases of COVID-19 were reported to World health organization including 6,281,260 deaths related to COVID globally
- Patients with certain comorbidities such as immunosuppression, CKD, and renal transplant, still have higher mortality rates as compared to general population
- Current data suggests the risk of developing COVID-19 among transplant patients is about 5%, which is significantly higher than the risk rate of 0.3% in the general population.
- However, the disease affects patients with certain risk factors disproportionately. Recent data has shown chronic comorbidities, such as acute kidney injury, COPD, diabetes, hypertension, CVD, cancer, increased D-dimer, along with demographic variables such as male gender, older age, current smoker, and obesity are clinical risk factors for a fatal outcome associated with coronavirus

Objective

The purpose of this descriptive study was to compare the mortality rate between vaccinated and unvaccinated Kidney Transplant recipients recruited at a community-based transplant clinic in West Texas.

Methods

Retrospective Data was collected from Kidney Transplant Clinic at a Medical Center located in El Paso, Texas

Data was gathered between January 2020 and January 2022 from the transplant database

Inclusion criteria
aged >18 being a kidney transplant recipient (deceased and living) and had a current functioning transplanted kidney. We included all patients who tested positive for COVID-19

A total of **38** patients were included in the study between the year 2020 and 2022.

- Patient whose data could not be obtained since they were deceased and/or did not have next of kin were excluded from the study. Patients were also excluded from the study if their missing data could not be obtained or validated by patient or next of kin

Results

TABLE. 1-Contains information regarding Patient Demographics , vaccine status and outcomes in the study population (N=38)

	Number	Percent
Gender		
Male	27/38	71%
Female	11/38	28.9
Vaccination		
Vaccine	27/38	71%
Unvaccinated	11/38	28.9%
Mortality		
Vaccinated death	4/27	14.8%
Unvaccinated death	10/11	90.9%
Length of stay >5 days		
Vaccinated	9/27	33%
Unvaccinated		
Comorbidities		
HTN	29/38	76%
DM	25/38	65.8%
Donor Type (DD)		
Deceased Donor	32/38	84.2%
Living Donor	6/38	15.7%
Induction therapy >350		
Vaccinated	12/20	60%
Unvaccinated	9/20	45%
Induction Therapy >350 mg +unvaccinated status		
Lived	1/9	11.1%
Died	8/9	88%

Discussion

- The data also showed higher rates of death among those unvaccinated versus those who were vaccinated with the COVID-19 vaccine.
- Studies have shown that kidney transplant recipients had a two-fold higher risk of Covid-19-related death compared to non-transplant patients after adjustment for age, BMI, and major comorbidities.
- On average a higher dose of induction therapy was used in the unvaccinated patient group when compared to vaccinated patient group.
- Some studies suggest Immunosuppression may have a protective effect against COVID19 as it limits the cytokine storm which is one of the main pathogenesis of the disease.
- However on the other hand reducing or completely withdrawing immunosuppression in severe disease also allows for early restoration of host immune system
- A recent metanalysis showed the best approach to management of Kidney transplant patient was to obtain an individualized approach based on clinical presentation of each patient

Conclusion

- Large phase 3 clinical trials are still currently underway worldwide to study the effects of vaccine on transplant patient. Our study suggests that vaccination against COVID 19 decreases mortality rates in Kidney Transplant recipient.
- It is important to have a large prospective double-blind study on the use of vaccinations in renal transplant recipients would be useful to study the effectiveness on this population.

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