

THE IMPACT OF CORONAVIRUS DISEASE- 19 (COVID- 19) ON KIDNEY TRANSPLANT FUNCTION

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INTRODUCTION

- general practitioners, UC for infectious diseases and febrile conditions, departments for infective diseases in general hospitals, COVID- 19 centers at internal clinics and at surgical clinics
- **treated according to the protocols for COVID-19 by the local authorities**
- population in RN Macedonia ~ 2 millions
- population on hemodialysis ~ 1500
- kidney transplant patients ~ 300
(population with an increased risk of any type of infection) **great challenge.**

Aim: Does COVID-19 affects the function of the transplanted kidney 1 year later?



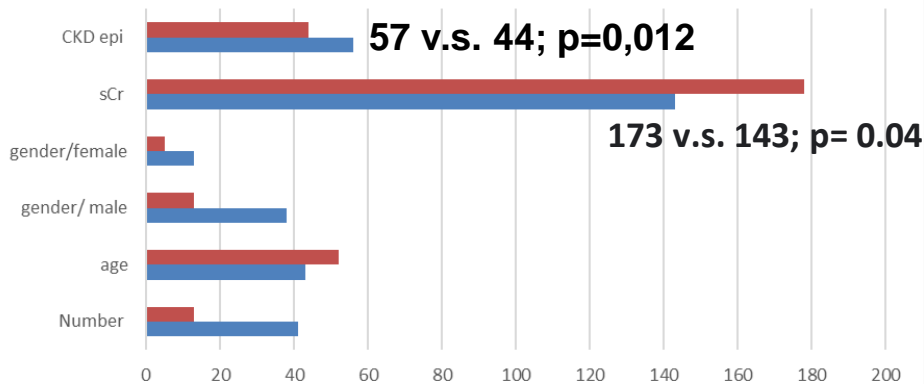
MATERIAL AND METHODS

- period: March 2020 to March 2022
- patients with transplanted kidney and positive PCR for SARS CoV-2
- symptoms of mild, moderate and severe form of COVID-19
- followed for one year, with standard laboratory tests
- renal function was evaluated by monitoring of:
 - serum creatinine ($\mu\text{mol/L}$),
 - calculating glomerular filtration rate (GFR) with CKD epi equation (ml/min)
 - proteinuria (qualitatively and quantitatively)
- D0- baseline (before COVID-19) and D1- one year later.

RESULT:

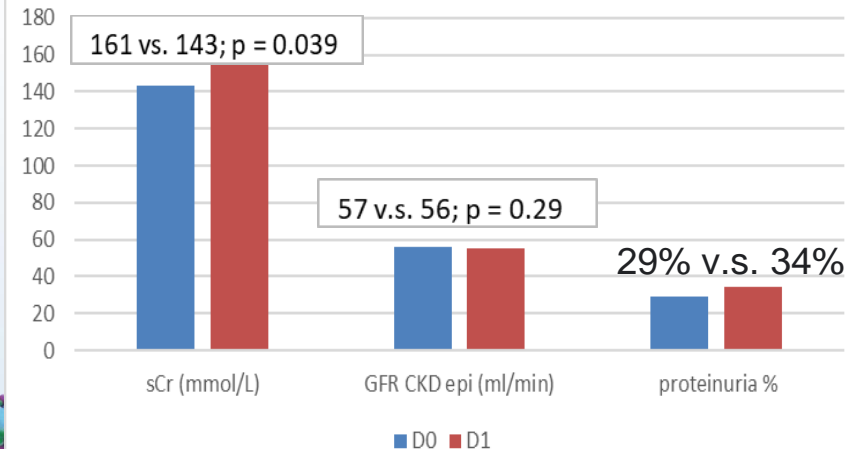
- total 64 patients
- mean age of 44 ± 1.4
- hospitalization 47 (73%), mechanical ventilation 12 (56%), 10 (15%) hemodialysis
- 13 (20%) died

comparison of baseline parameters between surviving and deceased patients



	Number	age	gender/ male	gender/female	sCr	CKD epi
■ died	13	52	13	5	178	44
■ survivor	41	43	38	13	143	56

comparison of graft function data before COVID-19, D0 and one year later D2



DISCUSSION

Pathohistological findings from renal biopsy in COVID-19 pts

Meghan E.Kapp et al. Renal Considerations in COVID-19: Biology, Pathology, and Pathophysiology. *ASAIO J.* 2021 Oct; 67(10): 1087–1096.

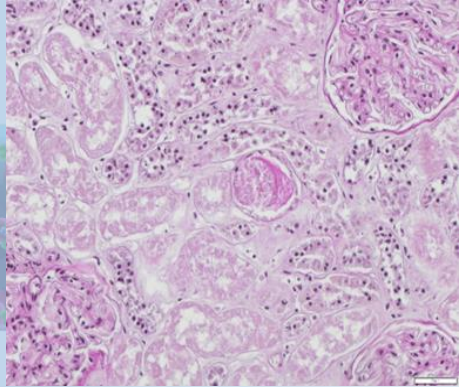


Fig.1 **Acute tubular injury** with cytoplasmic vacuolization, blebbing, and loss of brush border (periodic acid Schiff, original magnification $\times 200$).

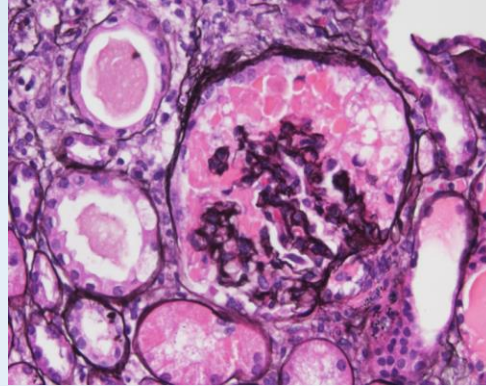


Fig.2 **Collapse of glomerular tuft** with overlying visceral epithelial cell hyperplasia with protein droplets diagnostic of collapsing glomerulopathy (Jones' silver stain, original magnification $\times 400$).

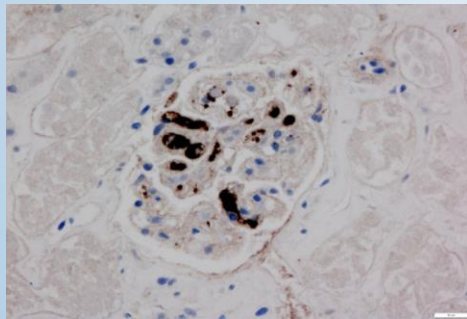


Fig.3 **Thrombosis in glomerular capillary loops** with CD61-positive staining (anti-CD61 IHC, original magnification $\times 200$).

increase in serum creatinine

decrease in GFR

appearance of proteinuria

CONCLUSION

COVID-19 affects graft function

Further follow-up at 3 and 5 years is needed for more precise results.

