\* Risk factors or causes of frailty among CKD patients.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Effect (descriptions) | | | Risk Difference | Frailty Assessment | Sample Size | CKD Severity | Reference |
| Biological | |  | | |  |  |  |  |  |
|  | Cardiovascular | Cerebrovascular Accident | | | OR 1.55 (1.05-2.99) | Fried Phenotypes | 2275 | CKD stage 5D (hemodialysis) | 4 |
| Permanent Vascular Access (fistula or graft) | | | HR 0.71 (0.51-0.98) | Fried Phenotypes | 2275 | CKD stage 5D (hemodialysis) | 4 |
|  | Renal Function Decline | Risk for death or dialysis therapy | | | 2.5 (1.4-4.4)-fold greater | Fried Phenotypes | 336 | CKD stages 1-4 | 3 |
|  | Immunological | Mycophenolate mofetil (MMF) dose reduction (MDR) | | | HR 1.29 (1.01-1.66) | Fried Phenotypes | 525 | CKD stage 5T | 9 |
|  | Cognitive | Modified Mini-Mental State (3MS) | | | -2.37 to -2.80 (1 year) | Fried Phenotypes | 324 | ESRD | 5 |
|  | Diabetes | Diabetes | | | OR 1.35 (1.10-1.65) | Fried Phenotypes | 2275 | CKD stage 5D | 4 |
|  | Laboratory data | Serum Albumin Concentrations (g/dL) | | |  | Fried Phenotypes | 2275 | CKD stage 5D | 4 |
|  | <3.2 vs. ≥3.9 | | OR 1.89 (1.30-2.59) |
| Psychological | |  | | |  |  |  |  |  |
|  | Delirium | Post-KT delirium | | | OR 2.05 (1.02-4.13) | Fried Phenotypes | 893 | CKD stage 5T | 15 |
| Quality of Life | | HRQoL | | |  |  |  |  |  |
|  | SF-36 | |  |  |  |  |  |
|  |  | Hierarchical regression R^2 change (effects of frailty on HRQoL) in Physical Component Summary (PCS) | 29% (p<0.001) | Fried Phenotypes | 168 | CKD stage 2-4 | 17 |
|  |  | Hierarchical regression R^2 change (effects of frailty on HRQoL) in Mental Component Summary (MCS) | 21.3% (p<0.001) |
|  | KDQOL-SF scores in physical and kidney disease-specific HRQoL | |  | Fried Phenotypes | 443 | CKD stage 5T | 18 |
|  | At KT | ↓ |
|  | Post-KT | Greater increase |
| Falls | | | HR 2.1 (1.21-3.92) | Fried Phenotypes | 205 | CKD stage 5D (hemodialysis) | 1 |
| Health-care utilization | | Hospitalization/Death | | | HR 1.56 (1.36-1.79) | Fried Phenotypes | 2275 | CKD stage 5D | 4 |
| Hospitalization | | | HR 2.06 (1.18-3.58) | Fried Phenotypes | 205 | CKD stage 5D (hemodialysis) | 1 |

Bibliography

1. YadlaM, JohnJ, MummadiM. A study of clinical assessment of frailty in patients on maintenance hemodialysis supported by cashless government scheme. *Saudi J Kidney Dis Transplant*. 2017. doi:10.4103/1319-2442.198102

2. MuradK, KitzmanDW. Frailty and multiple comorbidities in the elderly patient with heart failure: implications for management. *Heart Fail Rev*. 2012;17(4-5):581-588. doi:10.1007/s10741-011-9258-y

3. RoshanravanB, KhatriM, Robinson-CohenC, et al. A prospective study of frailty in nephrology-referred patients with CKD. *Am J Kidney Dis*. 2012;60(6):912-921. doi:10.1053/j.ajkd.2012.05.017

4. JohansenKL, ChertowGM, JinC, KutnerNG. Significance of frailty among dialysis patients. *J Am Soc Nephrol*. 2007;18(11):2960-2967. doi:10.1681/ASN.2007020221

5. McAdams-DemarcoMA, TanJ, SalterML, et al. Frailty and cognitive function in incident hemodialysis patients. *Clin J Am Soc Nephrol*. 2015;10(12):2181-2189. doi:10.2215/CJN.01960215

6. ChaoC-T, LaiH-J, TsaiH-B, YangS-Y, HuangJ-W. Frail phenotype is associated with distinct quantitative electroencephalographic findings among end-stage renal disease patients: an observational study. *BMC Geriatr*. 2017;17(1):277. doi:10.1186/s12877-017-0673-3

7. Fabrício-WehbeSCC, SchiavetoFV, VendrusculoTRP, HaasVJ, DantasRAS, RodriguesRAP. Cross-cultural adaptation and validity of the “Edmonton Frail Scale - EFS” in a Brazilian elderly sample. *Rev Lat Am Enfermagem*. 2009;17(6):1043-1049. doi:10.1590/S0104-11692009000600018

8. JohansenKL, DalrympleLS, DelgadoC, et al. Factors Associated with Frailty and Its Trajectory among Patients on Hemodialysis. *Clin J Am Soc Nephrol*. 2017;12(7):1100-1108. doi:10.2215/CJN.12131116

9. McAdams-DemarcoMA, LawA, TanJ, et al. Frailty, mycophenolate reduction, and graft loss in kidney transplant recipients. *Transplantation*. 2015;99(4):805-810. doi:10.1097/TP.0000000000000444

10. MargiottaE, CaldiroliL, VettorettiS, et al. SuO004GUT MICROBIOTA COMPOSITION AND FRAILTY IN ELDERLY PATIENTS WITH CHRONIC KIDNEY DISEASE. *Nephrol Dial Transplant*. 2018;33(suppl\_1):i618-i618. doi:10.1093/ndt/gfy104.SuO004

11. Adame PerezSI, SeniorPA, FieldCJ, JindalK, MagerDR. Frailty, Health-Related Quality of Life, Cognition, Depression, Vitamin D and Health-Care Utilization in an Ambulatory Adult Population with Type 1 or Type 2 Diabetes Mellitus and Chronic Kidney Disease: A Cross-Sectional Analysis. *Can J Diabetes*. June2018. doi:10.1016/j.jcjd.2018.06.001

12. ChiangJM, KaysenGA, SegalM, ChertowGM, DelgadoC, JohansenKL. Low testosterone is associated with frailty, muscle wasting and physical dysfunction among men receiving hemodialysis: a longitudinal analysis. *Nephrol Dial Transplant*. 2018. doi:10.1093/ndt/gfy252

13. DeSouza OrlandiF, GesualdoGD. Assessment of the frailty level of elderly people with chronic kidney disease undergoing hemodialysis. *ACTA Paul Enferm*. 2014;27(1):29-34. doi:10.1590/1982-0194201400007

14. SalesC, TavaresR, AmadoL, et al. SP651ANXIETY AND DEPRESSION IN END STAGE RENAL DISEASE PATIENTS AND ITS ASSOCIATION WITH CLINICAL AND LABORATORIAL DATA. *Nephrol Dial Transplant*. 2017;32(suppl\_3):iii355-iii355. doi:10.1093/ndt/gfx154.SP651

15. HaugenCE, MountfordA, WarsameF, et al. Incidence, Risk Factors, and Sequelae of Post-kidney Transplant Delirium. *J Am Soc Nephrol*. 2018;29(6):1752-1759. doi:10.1681/ASN.2018010064

16. MoffattH, MoorhouseP, MalleryL, LandryD, TennankoreK. Using the Frailty Assessment for Care Planning Tool (FACT) to screen elderly chronic kidney disease patients for frailty: the nurse experience. *Clin Interv Aging*. 2018;13:843.

17. LeeSJ, SonH, ShinSK. Influence of frailty on health-related quality of life in pre-dialysis patients with chronic kidney disease in Korea: a cross-sectional study. *Heal Qual Life Outcomes*. 2015;13:70. doi:10.1186/s12955-015-0270-0

18. McAdams-DeMarcoMA, OlorundareIO, YingH, et al. Frailty and Postkidney Transplant Health-Related Quality of Life. *Transplantation*. 2018;102(2):291-299. doi:10.1097/TP.0000000000001943