|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | Effect (descriptions) | | | | | | | Risk Difference between Frail and Nonfrail (OR, HR, Difference) | Frailty Assessment | Sample Size | CKD Pattern | Reference |
| Biological | | |  | | | | | | |  |  |  |  |  |
|  |  | | Hypertension | | | | | | |  |  |  |  |  |
|  |  | | Heart Failure | | | | | | |  |  |  |  |  |
|  | The use of certain HF therapies, e.g. inhibitors of the renin-aldosterone-angiotensin axis | | | | | | Relative or absolute contraindication | N/A | N/A | N/A | 1 |
|  | Prevalence | | | | | | +18% | Fried Frailty Phenotypes | 336 | CKD stages 1-4, non-dialysis-dependent | 2 |
| Coronary Artery Disease (CAD) | | | | | | | OR 1.17 | Fried Frailty Phenotypes | 2275 | Dialysis patients | 3 |
|  | Angina Prevalence | | | | | | +12% | Fried Frailty Phenotypes | 336 | CKD stages 1-4, non-dialysis-dependent | 2 |
|  |  | | | | | |  |  |  |  |  |
| Peripheral Arterial Occlusive Disease (PAOD) | | | | | | | OR 1.19 | Fried Frailty Phenotypes | 2275 | Dialysis patients | 3 |
|  | Cerebrovascular | | Cerebrovascular Disease | | | | | | | +14.4% | Fried Frailty Phenotypes | 324 | ESRD | 4 |
| Cerebrovascular Accident | | | | | | | OR 1.55 | Fried Frailty Phenotypes | 2275 | Dialysis patients | 3 |
|  | Neurological | | Brain Wave | | | | | | |  | Simple FRAIL scale (SFS) | 46 | ESRD, under chronic dialysis | 5 |
|  | | | Global DAR | | | | 283 ± 679 vs. 2971 ± 4859 |
|  | | | DARs (left frontal) | | | | 135 ± 250 vs. 3073 ± 4702 |
|  | | | DAR (left TO) | | | | 197 ± 318 vs. 3708 ± 6398 |
|  | | | DAR (central) | | | | 55 ± 96 vs. 1773 ± 3262 |
|  | | | DAR (right TO) | | | | 187 ± 261 vs. 4400 ± 7763 |
|  | | | Global DTABR | | | | 191 ± 469 vs. 1781 ± 2793 |
|  | | | DTABR (left frontal) | | | | 86 ± 158 vs. 1680 ± 2388 |
|  | | | DTABR (left TO) | | | | 130 ± 210 vs. 1884 ± 2828 |
|  | | | DTABR (central) | | | | 39 ± 65 vs. 1132 ± 1957 |
|  | | | DTABR (right TO) | | | | 126 ± 178 vs. 2960 ± 5271 |
|  | Excretory System | | Permanent Vascular Access (fistula or graft) | | | | | | | HR 0.71 | Fried Frailty Phenotypes | 2275 | Dialysis patients | 3 |
|  | Cognitive | | Modified Mini-Mental State (3MS) | | | | | | | At cohort entry: -2.37  At 1-year follow-up: -2.80 | Fried Frailty Phenotypes | 324 | ESRD | 4 |
| Mini-Mental State Examination (MMSE) | | | | | | |  | Edmonton Frail Scale (EFS) | 137 | Brazilian Elderly | 6 |
|  | Spearman’s correlation coefficient of EFS scores with gross MMSE scores | | | | | | -0.607 |
|  | Immunological | | Inflammatory | | | | | | |  |  |  |  | 7 |
| Mycophenolate mofetil (MMF) dose reduction (MDR) | | | | | | | HR 1.29 | Fried Frailty Phenotypes | 525 | Kidney transplant recipients | 8 |
|  | | | | | 1 year since KT | | +4% |
|  | | | | | 2 years since KT | | +9% |
|  | | | | | 3 years since KT | | +16% |
| Gut Microbiota Composition | | | | | | |  | Fried Frailty Phenotype score | 64 (and 15 control subjects) | Stage 3b-4, eGFR 15-45ml/min | 9 |
|  | Malnutrition-Inflammation-Score (MIS) | | | | | | +3.7 |
|  |  | | | Abundance of unclassified Mogibacteriaceae and Oscillospira | | | Directly proportional to MIS |
|  |  | | | Abundance of Akkermansia, Ruminococcus, and Eubacterium | | | Inversely proportional to MIS |
|  | Bacterial Abundance of some genera (Mogibacteriacee, Coriobacteriacee, Eggerthella, Erwinia, Coprobacillus, Anaerotruncus, etc) | | | | | | ↑ |
|  | Physical Function | | Disability | | | | | | |  | Fried Frailty Phenotypes | 336 | CKD stages 1-4, non-dialysis-dependent | 2 |
|  | Activities of Daily Living (ADLs) | | | | | | +10% |
|  | Instrumental Activities of Daily Living (IADLs) | | | | | | +32% |
|  | Mobility Disabilities | | | | | | +22% |
|  | Metabolic Syndromes | | Diabetes | | | | | | | OR 1.35 | Fried Frailty Phenotypes | 2275 | Dialysis patients | 3 |
| Prevalence +15% | Fried Frailty Phenotypes | 336 | CKD stages 1-4, non-dialysis-dependent | 2 |
| Obesity | | | | | | | Prevalence +14% | Fried Frailty Phenotypes | 336 | CKD stages 1-4, non-dialysis-dependent | 2 |
|  | Dry weight BMI | | | | | | +3.9 | Fried Frailty Phenotypes | 324 | ESRD | 4 |
|  | Prevalence | | | | | | +27.9 |
|  | Laboratory Data | | eGFR (mL/min/1.72m^2) | | | | | | | -32 | Edmonton Frail Scale (EFS) | 41 | CKD stage 1-5 | 10 |
| Serum Albumin Concentrations (g/dL) | | | | | | | ↓ | Fried Frailty Phenotypes | 2275 | Dialysis patients | 3 |
|  | <3.2 | | | | | | OR 1.89 |
|  | 3.2 to <3.5 | | | | | | OR 1.32 |
|  | 3.5 to <3.9 | | | | | | OR 1.06 |
|  | ≥3.9 | | | | | | OR 1.0 (Referent) |
| Albumin (g/L) | | | | | | | -3 | Edmonton Frail Scale (EFS) | 41 | CKD stage 1-5 | 10 |
| Calcium (mmol/L) | | | | | | | -0.12 |
| Creatinine (umol/L) | | | | | | | +184 |
| Serum Creatinine <4 mg/dL | | | | | | | RR 1.46 | Fried Frailty Phenotypes | 205 | Maintenance hemodialysis | 11 |
| Psychological | | |  | | | | | | |  |  |  |  |  |
|  | Mood | | Mood Change | | | | | | | Negative change | Edmonton Frail Scale (EFS) | N/A | Undergoing hemodialysis | 12 |
|  | Mental Health | |  | | | | | | |  |  |  |  |  |
|  |  | Anxiety | Hospital Anxiety and Depression Scale (HADS) | | | | | | | Women:↑in global, psychological, social frailty  Men:↑in Physical frailty | N/A | 97 | ESRD, under online-haemodiafiltration (OL-HDF) | 13 |
|  |  | Depression | Hospital Anxiety and Depression Scale (HADS) | | | | | | | Men↑in global, psychological, physical frailty | N/A | 97 | ESRD, under online-haemodiafiltration (OL-HDF) | 13 |
| Self-reported Major Depression Inventory | | | | | | | +77% | Edmonton Frail Scale (EFS) | 41 | CKD stage I to V | 10 |
|  | Executive Function | | Trail Making Tests A (TMTA) | | | | | | | At cohort entry: +12.08 | Fried Frailty Phenotypes | 324 | ESRD | 4 |
| Trail Making Tests B (TMTB) | | | | | | | At cohort entry: +33.15 | Fried Frailty Phenotypes | 324 | ESRD | 4 |
|  | Mental Function | | Post-KT delirium | | | | | | | +5.1%  OR 2.05 | Fried Frailty Phenotypes | 893 | Kidney Transplant recipients | 14 |
| Sociological | | |  | | | | | | |  |  |  |  |  |
|  | Isolation | |  | | | | | | |  |  |  |  |  |
|  | Interaction | | Interaction with family | | | | | | | Good |  |  |  | 15 |
| Life Style | | |  | | | | | | |  |  |  |  |  |
| Quality of Life | | | HRQoL | | | | | | |  |  |  |  |  |
|  | SF-36 | | | | | |  |  |  |  |  |
|  |  | Scores in physical functioning, blood pressure, role physical, and physical component summary domains | | | | | ↓ | Edmonton Frail Scale (EFS) | 41 | CKD stage 1-5 | 10 |
|  |  | Hierarchical regression R^2 change (effects of frailty on HRQoL) in Physical Component Summary (PCS) | | | | | 29% | Fried Frailty Phenotypes | 168 | CKD patients stage 2-4, pre-dialysis | 16 |
|  |  | Hierarchical regression R^2 change (effects of frailty on HRQoL) in Mental Component Summary (MCS) | | | | | 21.3% |
|  | KDQOL-SF scores in physical and kidney disease-specific HRQoL | | | | | |  | Fired Frailty Phenotypes | 443 | KT patients | 17 |
|  | | | | | At KT | ↓ |
|  | | | | | Post-KT | Greater ↑ |
| Independence | | | Functional Independence Measure (FIM) | | | | | | |  | Edmonton Frail Scale (EFS) | 137 | Brazilian Elderly | 6 |
| Spearman’s correlation coefficient | | | | Frailty diagnosis with global FIM | | | -0.703 |
| Frailty diagnosis with motor FIM | | | -0.714 |
| Frailty diagnosis with cognitive FIM | | | -0.575 |
| EFS scores with gross FIM | | | -0.53 |
| Health-care utilization | | | hospitalization | | | | | | | HR 1.56 | Fried Frailty Phenotypes | 2275 | Dialysis patients | 3 |
|  | | |  | | | | | | |  |  |  |  |  |

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