

Table 1. Search syntax

Domain	("Kidney Failure, Chronic"[Mesh] OR "Renal Dialysis"[Mesh] OR dialysis[tiab] OR "hemodialysis"[tiab] OR "renal replacement therapy"[tiab] OR "renal failure"[tiab] OR "kidney failure"[tiab] OR "chronic kidney disease"[tiab] OR "chronic renal disease"[tiab] OR "end stage renal disease"[tiab] OR "end stage kidney disease"[tiab])
	AND
Determinant	("Geriatric Assessment*" [tiab] OR frailty[tiab] OR "activities of daily living"[tiab] OR "activities of daily life"[tiab] OR "assistance with daily living"[tiab] OR "functional status"[tiab] OR "functional decline"[tiab] OR "functional dependency"[tiab] OR "functional dependencies"[tiab] OR "dependency for transfers"[tiab] OR "functional impairment*" [tiab] OR ((cognitive[tiab]AND (impairment* OR decline OR dysfunction OR status OR function)) OR dementia[tiab] OR mood[tiab] OR depression[tiab] OR depressive[tiab] OR nutrition*[tiab] OR malnutrition[tiab] OR mobility[tiab] OR "gait speed"[tiab] OR "physical function*" [tiab] OR "physical performance"[tiab] OR comorbid*[tiab] OR "screening tool*" [tiab] OR (social[tiab] AND (network OR environment OR issues)))
	AND
Outcome	(prognosis[tiab] OR survival[tiab] OR prognostication[tiab] OR mortality[tiab] OR complication*[tiab] OR "quality of life"[tiab] OR "life expectancy"[tiab])

Table 2. Quality Assessment of studies according to the Newcastle-Ottawa Quality Assessment Scale for Cohort Studies¹

Selection	Score
1) Representativeness of the exposed cohort	
a) truly representative of the average incident dialysis population <i>incident dialysis defined as < 7 days before start of dialysis</i>	+
b) somewhat representative of the average incident dialysis population <i>also included children</i> <i>excluding a racial group</i> <i>“incident” defined as between start and 3 months after start dialysis</i>	+/-
c) selected group of dialysis population <i>only diabetics</i> <i>excluding mortality < 3 months</i> <i>excluding patients with poor health</i> <i>previous other mode of dialysis</i> <i>excluding elderly patients</i>	-
d) no description of the derivation of the cohort	-
2) Selection of the non-exposed cohort: not applicable	
3) Ascertainment of exposure	
a) systematic assessment of at least one domain	+
b) non-systematic assessment	+/-
c) diagnosis based on ICD code only	-
4) Demonstration that outcome of interest was not present at start of study	
a) yes	+
b) no	-
Comparability Not applicable	
Outcome	
1) Assessment of outcome	
a) independent blind assessment	+
b) record linkage	+
c) self-report	-
d) no description	-
2) Was follow-up long enough for outcomes to occur	
a) yes (6 months or more)	+
b) no	-
3) Adequacy of follow up of cohorts	
a) complete follow up - all subjects accounted for	+
b) small number lost to follow up (< 10%)	+
c) large number lost to follow up (> 10%)	-
d) no statement	-

Legend: + Good, +/- Moderate, - Poor

Table 3. Quality Assessment of studies according to the Newcastle-Ottawa Quality Assessment Scale for Cohort Studies

Author	Publication Year	Quality assessment: selection			Quality assessment: outcome		
		Representativeness of exposed cohort	Ascertainment of exposure	Outcome not present at start of study	Assessment of outcome	Sufficient duration of follow-up	Adequacy of follow-up
Aflaadhel²	2015	+	+	+	+	+	+
Arai³	2014	+	-	+	+	+	+
Bao⁴	2012	+/-	-	+	+	+	+
Boulware⁵	2006	+/-	-	+	+	+	-
Chan⁶	2012	+/-	-	+	+	+	+
Chandna⁷	1999	+	+	+	+	+	+
Chilcot⁸	2011	+/-	+	+	+	+	+
Chung⁹	2009	-	+	+	+	+	-
Churchill¹⁰	1996	-	+	+	+	+	+
Couchoud¹¹	2009	+	-	+	+/-	+	+
Couchoud¹²	2015	+	-	+	+/-	+	+
Diefenthaeler¹³	2008	+/-	+	+	+	+	+
Doi¹⁴	2015	+	-	+	+	+	-
Genestier¹⁵	2009	+	-	+	+	+	+
Honda¹⁶	2007	-	+	+	+	+	+
Jassal¹⁷	1996	+	+	+	+	+	-
Johansen¹⁸	2007	+/-	-	+	+	+	+
Joly¹⁹	2003	+	+	+	+	+	+
Kim²⁰	2014	+	-	+	+	+	-
Lacson²¹	2012	+/-	-	+	+/-	+	+
Lacson²²	2013	+/-	-	+	+/-	+	+
Lopez Revuelta²³	2004	+/-	+	+	+	+	-
Mauri²⁴	2008	+	-	+	+	+	+
McClellan²⁵	1991	+/-	+	+	+	+	-
Rakowski²⁶	2006	+	-	+	-	+	-
Soucie²⁷	1996	+/-	-	+	-	+	-
Thamer²⁸	2015	-	-	+	-	+	-

Legend: + Good, +/- Moderate, - Poor

Table 4. Critical appraisal of assessment tools as used in the studies included in the review

Frailty	(*) Frailty Index by Fried²⁹	Modified Fried Frailty Index by Woods³⁰ (18)	Modified Fried Frailty Index (4)	Clinical Frailty Scale (CFS)³¹ (2)
Content	1. Unintentional Weight loss 2. Weakness 3. Poor endurance 4. Slowness 5. Low activity	1. Undernourished or cachectic as assessed by data abstractor 2. Rand-36 physical function < 75 3. Rand-36 vitality < 55 4. "Almost never" or never active 5. Kcal/week by self-report	1. SF-12 physical function scale; score < 75='slow' or 'weak' 2. Two questions addressing energy and "feeling washed out and drained" 3. Lowest quintile of Adjusted Activity Score 4. Activities base on Human Activity Profile	1. Very fit 2. Well, without active disease 3. Well, with treated comorbid disease 4. Apparently vulnerable: "slowed up" 5. Mildly frail: limited dependence for iADL 6. Moderately frail, limited dependence for ADL 7. Severely frail: completely dependent for ADL
Score	1 point for each item; total 5 points	1 point for each item; total 5 points	1 point for SF-12 PF < 75, 1 point for other 2 items; total 3 points	Ordinal scale
Cut-off	frail ≥ 3 points, pre-frail 2 points	frail ≥ 3 points	frail ≥ 2 points	none
Strengths	Widely used Objective: all points have standard measurements and cut-off values	Can be used when performance measures are missing, Easy to obtain from database	Idem as Woods index	Easy to obtain Captures incremental severity of frailty Includes impression of ADL/iADL
Weaknesses	Collecting grip strength and walking speed is time consuming	Subjective: self-reported Frailty may be over-identified when compared to Fried frailty index	Idem as Woods Index Does not include information on wasting, which may reduce its sensitivity (no data available on this)	Subjective: impression of physician Definitions not indisputable, standardization difficult Not compared with Fried Index in dialysis
Conclusion	The Fried Frailty Index, which includes items of physical performance, is most objective and considered the "gold standard" in nephrology. ³² The Fried derived frailty scores focus on physical activity rather than performance, and are useful in retrospectively obtaining data on frailty from databases. However, they are likely to overestimate frailty compared to Fried. CFS focuses on the influence on daily life by capturing aspects of ADL and iADL. The different definitions of frailty of the Fried (derived) scores and the CFS make it difficult to compare the scores. Frailty is a multidimensional construct and the exact definition is subject of an on-going debate. ³³ Different frailty screening tools exist that additionally include psychosocial and cognitive domains. ^{34,35} Which frailty-screening instrument is appropriate depends on the setting and indication. The CFS may be useful for longitudinal measurements due to the ability to detect incremental severity of frailty.			

Performance	Karnofsky Performance (7, 8, 17, 19, 36)	Modified Karnofsky Performance index (23-25, 27)	WHO score (14)	AGGIR⁽¹⁵⁾
Content	100. Normal no complaints 90. Able to carry on normal activity 80. Normal activity with effort 70. Cares for self; unable to carry on normal activity 60. Requires occasional assistance 50. Requires considerable assistance 40. Disabled 30. Severely disabled 20. Very sick 10. Moribund	90-100 (≥ 9) No complaints: almost normal physical activity 80-89 (8-9) Able to carry out normal physical activity at least part of the time 70-79 (7-8) Only able to carry out physical activities involving self-care 40-69 (4-7) Requires at least some assistance for care of bodily needs; may require special care; often debilitated 1-39 (< 4) Requires institutionalization or hospitalization; may be moribund	0. Able to carry out all normal activity without restrictions. 1. Restricted in physically strenuous activity but ambulatory and able to carry out light work. 2. Ambulatory and capable of all self-care but unable to carry out any work; up and more than 50% of waking hours. 3. Capable of only limited self-care; confined to bed or chair more than 50% of waking hours. 4. Completely disabled	1. bedridden, cognitive impaired, ADL-dependent 2. bedridden, cognitive mildly impaired, mostly ADL-dependent 3. total assistance with physical performance 4. limited assistance with ADL and physical performance 5. occasional assistance with ADL 6. non ADL dependent
Score	Ordinal 10-point scale 100-0 (moribund)	Ordinal 5-point scale	Ordinal 5-point scale 0-4	Ordinal 6-point scale 1-6
Cut-off	≤ 70 / ≤ 60 disabled ² ≤ 40 severely impaired*	< 70 / < 7 dependent < 4 severely impaired*	2-4 limited; 0-1 non-limited	1-4 limited; 5-6 non-limited
Strengths	Widely used in ESKD, easy to obtain, clear definition of performance status	Easy to obtain, clear definition of performance status	Easy to obtain, clear definition of performance status	Easy to obtain, fairly clear definition performance status
Weaknesses	Developed for the oncology population. *Different cut-off values for (severe) disability, which may impede comparison of results	Idem to original score, although simplification may cause loss of information. The numbering may be confusing. *Different cut-off values.	Developed for the oncology population. Discriminates only 3 categories of self-care, which makes it less suited for elderly patients	National score system, not frequently used in ESKD, overlap with ADL-scores but not as comprehensive
Conclusion	All tests score both physical performance and ADL and are fairly comparable. The Karnofsky score is most extended and has been widely used in ESKD. There is no comparison between the original and			

	modified Karnofsky in ESKD. Use of different cut-off values impedes with comparison of the results. A score of ≤ 70 for disablement is most common. NB. It is noteworthy that retrospectively collected data regarding performance status may be compromised by missing data or assumptions, since the amount of assistance needed is often not (well) documented.
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ADL	Barthel Index ³⁷ (¹⁷)	Scale of Basic Activities of Daily Living (¹⁵)
Content	10-items: feeding, bathing, grooming, dressing, bowels, bladder, toilet use, transfers, mobility, stairs	6-items: hygiene, dressing, toileting, locomotion, continence, meals
Score	Items are divided in 2-4 categories, given 0,5,10, or 15 points Subsequently categorized into multiple categories	Each item ranked from 0. autonomous 1. partial assistance 2. total assistance
Cut-off	Different cut-off values for categories	ADL Dependent > 6
Strengths	Easy to obtain, clear definition of subcategories, comprehensive scale for ADL, weighted score for the different items	Easy to obtain, clear definition of subcategories
Weaknesses	Different cut-off values for categories, not specifically developed or adjusted for ESKD	Not specifically developed or adjusted for ESKD
Conclusion	The Barthel Index has been most frequently applied in ESKD. The scale of basic ADL resembles the widely used Katz's ADL score, an other frequently used scale, but ranks each item on a 3-point scale instead of a 2-point score. The Barthel index is slightly more comprehensive, but the tests are equally likely to detect problems in ADL. NB. These is considerable overlap with the items captured in the tests for performance status. For intervention purposes, the more comprehensive tests for ADL (Barthel, Katz) may be superior, because deficits in specific items can be found.	

Depression	Beck's Depression Inventory (¹³)& Beck's Depression Inventory II (⁸)	Geriatric Depression Scale-30 ³⁸ (¹⁷)	(*) Geriatric Depression Scale-15 ³⁹	Mental Health Index – 5 item (⁶) (subscale of the SF-36)	Mental Health Index – 2 item (^{21,22}) (subscale of the SF-36)
Content	21 items about affective, cognitive and somatic symptoms that are indicative for depression. BDI II is the revised version (1996)	30 items on how participant felt over the last week	15 items on how participant felt over the last week	Frequency of feelings over last 4 wks: #1. Being nervous #2. Feeling down in the dumps #3. Feeling calm and peaceful #4. Feeling downhearted and blue #5. Being happy	Frequency of feelings over last 4 wks: #2. Feeling down in the dumps #4. Feeling downhearted and blue
Score	Each item ranked 0-3, range 0-63	Yes/no.	Yes/no. In the short form 5 items are scored positive when the answer is "no".	Frequency of each item scored 1-6. Answers to each question are summed to produce raw scores and then transformed to a 0 –100 scale.	Frequency of each item scored 1-6. Depression score = (7-#2 + 7-#4) / 2 ²¹
Cut-off	$\geq 14^{13} / \geq 16^8$	10-19 mild depressive 20-30 severe depressive	5-8 mild, 9-11 moderate, 12-15 severe depression*	≤ 52 depressive symptoms	>2-4 possibly depressed $\geq 5-6$ likely depressed
Strengths	Validated in ESKD ⁴⁰ High sensitivity (91%) and specificity (86%) ⁴⁰ Most frequently used in dialysis	High sensitivity (92%) and specificity (89%) in general elderly population. ⁴¹ Comprehensive	Validated in ESKD ⁴⁰ Good specificity 82% (Sensitivity 63%) ⁴⁰ Most widely used in the general elderly population	Convenient tool to obtain data on depressive symptoms from registries/databases that use the SF-36	Convenient tool to obtain data on depressive symptoms from registries/databases that use the SF-36
Weaknesses	Different cut-off values, which impedes comparison of results	Time consuming (30 minutes) No other studies in ESKD	*Different cut-off values, which impedes comparison of results	Sensitivity (79%) and specificity (72%) in general population. ⁴² Not validated in ESKD	Compared to BDI in ESKD: Sensitivity 65%, 82% and specificity 67% and 69% (for #2 and #4 resp.) ⁴²
Conclusion	BDI is the most frequently used test for depression in ESKD and has a good validity. The GDS-30 is rather time-consuming to function as a screening test. The shorter GDS(-15), which was specifically developed for elderly patients as well, might be a good option in elderly dialysis patients. The correlation between the GDS-15 and the BDI in elderly dialysis patients was not optimal ($r = 0.692$; $p < 0.001$). ⁴⁰ However, in two studies assessing both tests sensitivity and specificity were comparable. ^{40, 43} The MHI-5 and MHI-2 can retrospectively obtain data on depressive symptoms from registries that incorporate the SF-36. However, they are inferior to the other screening tests and will not be suffice for a geriatric assessment. Studies that only include the ICD diagnosis of depression are likely to miss a considerable amount of depressed patients. ⁴⁴				

Mobility	Criteria for impaired elderly Ministry of Health and Welfare in Japan ⁽³⁾	Criteria as applied by Couchoud ^(11,12)
Content	8 categories based on increasing disability 1. able to walk without any limitation 2. able to walk without assistance only in the neighbourhood 3. able to walk without assistance only indoors 4. need assistance to walk 5. able to stand without assistance, but not walk 6. need assistance to stand 7. able to roll over without assistance in bed, but not stand 8. need assistance to roll over in bed	3 categories based on increasing disability 1. Walks without help 2. Need assistance for transfer 3. Totally dependent for transfer
Score	Ordinal	Ordinal
Cut-off	3-8 impaired; 1-2 not impaired	n/a
Strengths	Structured clinical measurement Discriminates between different levels of more severe impairment	Easy to obtain from database
Weaknesses	Does not include information on walking aids and balance disorders Specially suited for the very elderly or disabled population	Does not include information on walking aids and balance disorders Likely to miss a considerable amount of data
Conclusion	The Japanese mobility test obtains more detailed information on mobility in a structured and prospective way. Such an approach is likely to be more reliable, since in retrospective obtained data information on mobility may be missing if not adequately filed. However, it is an assessment specifically for elderly patients. Multiple other assessments for mobility are available, some of which are significantly related to poor outcome in community-dwelling elderly, such as walking speed, stair climbing and Timed-Up-and-Go test. ⁴⁵	

Cognition	Mental score⁴⁶ ⁽¹⁷⁾
Content	10-items, mainly on orientation: 1. age; 2. Time; 3. address “ 42 West Street” (To be recalled at the end of the test); 4. Year; 5. name of hospital; 6. recognition of two persons (nurse, doctor etc.); 7. date of birth; 8. date of First World War I; 9. name of present Monarch; 10. count backward 20-0
Score	Good score of each items scores 1 point
Cut-off	< 7
Strengths	Easy to apply Clear definition
Weaknesses	Captures only a limited number of potentially impaired cognitive domains Not developed or validated in kidney disease
Conclusion	The Mental score has not frequently be used in ESKD. A cognition-screening test in CKD and dialysis should be able to adequately detect vascular cognitive impairment. The Montreal Cognitive Assessment showed good sensitivity (77%) and specificity (79%) for cognitive impairment in prevalent dialysis patients and performed better than the better-known Mini Mental State Examination (MMSE). ⁴⁷ Database studies will most likely underestimate the prevalence of cognitive impairment, because it is often under-diagnosed in dialysis and ESKD patients. ⁸

Nutritional status	Subjective Global Assessment⁴⁸ ^(6, 9, 16, 20, 36)
Content	5 items on medical history (weight change, dietary intake, gastrointestinal symptoms, functional impairment (nutritionally related), disease and its relation to nutritional requirements) 3 items on physical examination (signs of fat and muscle wasting, edema)
Score	1-7
Cut-off	Very mild risk to well-nourished= 6 or 7 Mild-moderate = 3-5 Severely malnourished = 1 or 2
Strengths	Reliable assessment, rapid performance, widely used in CKD, strong predictive value for mortality in multiple large studies, recommended clinical test by K/DOQI. ⁴⁹
Weaknesses	May not be a reliable predictor of degree of protein malnutrition. Reproducibility over time has not been well assessed.
Conclusion	Reliable screening instrument for malnutrition. K/DOQI advises additional assessment of BMI, handgrip strength, waist circumference, serum albumin, and serum creatinine. ⁴⁹

Legend

AGGIR Autonomie G rontologique Groupes Iso-Ressources, (i)ADL (instrumental) activities of daily living iADL BDI Beck's Depression Inventory, GDS Geriatric Depression Scale, ESKD end stage kidney disease, MHI Mental Health Inventory, PF physical functioning, RAND-36/ SF-36 Short Form (36) Health Survey, SF-12 short version of the SF-36.

References of the studies included in the review are indicated by (...). Tests marked with (*) are not included in the review, but are reference tests mentioned in the conclusion section

References

1. Wells G, SB, O'Connell D, Peterson J, Welch V, Losos M, Tugwell P: The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses. 2013.
2. Alfaadhel, TA, Soroka, SD, Kiberd, BA, Landry, D, Moorhouse, P, Tennankore, KK: Frailty and mortality in dialysis: evaluation of a clinical frailty scale. *Clin J Am Soc Nephrol*, 10: 832-840, 2015.
3. Arai, Y, Kanda, E, Kikuchi, H, Yamamura, C, Hirasawa, S, Aki, S, Inaba, N, Aoyagi, M, Tanaka, H, Tamura, T, Sasaki, S: Decreased mobility after starting dialysis is an independent risk factor for short-term mortality after initiation of dialysis. *Nephrology*, 19: 227-233, 2014.
4. Bao, Y, Dalrymple, L, Chertow, GM, Kaysen, GA, Johansen, KL: Frailty, dialysis initiation, and mortality in end-stage renal disease. *Archives of Internal Medicine*, 172: 1071-1077, 2012.
5. Boulware, LE, Liu, Y, Fink, NE, Coresh, J, Ford, DE, Klag, MJ, Powe, NR: Temporal relation among depression symptoms, cardiovascular disease events, and mortality in end-stage renal disease: contribution of reverse causality. *Clinical journal of the American Society of Nephrology : CJASN*, 1: 496-504, 2006.
6. Chan, M, Kelly, J, Batterham, M, Tapsell, L: Malnutrition (Subjective Global Assessment) Scores and Serum Albumin Levels, but not Body Mass Index Values, at Initiation of Dialysis are Independent Predictors of Mortality: A 10-Year Clinical Cohort Study. *Journal of Renal Nutrition*, 22: 547-557, 2012.
7. Chandna, SM, Schulz, J, Lawrence, C, Greenwood, RN, Farrington, K: Is there a rationale for rationing chronic dialysis? A hospital based cohort study of factors affecting survival and morbidity. *BMJ*, 318: 217-223, 1999.
8. Chilcot, J, Davenport, A, Wellsted, D, Firth, J, Farrington, K: An association between depressive symptoms and survival in incident dialysis patients. *Nephrology Dialysis Transplantation*, 26: 1628-1634, 2011.
9. Chung, SH, Noh, H, Jeon, JS, Han, DC, Lindholm, B, Lee, HB: Impact of incremental risk factors on peritoneal dialysis patient survival: Proposal of a simplified clinical mortality risk score. *Blood Purification*, 27: 165-171, 2009.
10. Churchill, D, Taylor, DW, Keshaviah, PR, Thorpe, KE, Beecroft, ML, Jindal, KK, Fenton, SSA, Bargman, JM, Oreopoulos, DG, Wu, GG, Lavoie, SD, Fine, A, Burgess, E, Brandes, JC, Nolph, KD, Prowant, BF, Page, D, McCusker, FX, Teehan, BP, Dasgupta, MK, Bettcher, K, Caruana, R, DeVeber, G, Henderson, LW: Adequacy of dialysis and nutrition in continuous peritoneal dialysis: association with clinical outcomes. Canada-USA (CANUSA) Peritoneal Dialysis Study Group. *J Am Soc Nephrol*, 7: 198-207, 1996.
11. Couchoud, C, Labeeuw, M, Moranne, O, Allot, V, Esnault, V, Frimat, L, Stengel, B, French Renal, E, Information Network, r: A clinical score to predict 6-month prognosis in elderly patients starting dialysis for end-stage renal disease. *Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association*, 24: 1553-1561, 2009.

12. Couchoud, CG, Beuscart, JB, Aldigier, JC, Brunet, PJ, Moranne, OP: Development of a risk stratification algorithm to improve patient-centered care and decision making for incident elderly patients with end-stage renal disease. *Kidney Int*, 88: 1178-1186, 2015.
13. Diefenthaeler, EC, Wagner, MB, Poli-de-Figueiredo, CE, Zimmermann, PR, Saitovitch, D: Is depression a risk factor for mortality in chronic hemodialysis patients? *Revista Brasileira de Psiquiatria*, 30: 99-103, 2008.
14. Doi, T, Yamamoto, S, Morinaga, T, Sada, KE, Kurita, N, Onishi, Y: Risk Score to Predict 1-Year Mortality after Haemodialysis Initiation in Patients with Stage 5 Chronic Kidney Disease under Predialysis Nephrology Care. *PLoS One*, 10: e0129180, 2015.
15. Genestier, S, Meyer, N, Chantrel, F, Alenabi, F, Brignon, P, Maaz, M, Muller, S, Faller, B: Prognostic survival factors in elderly renal failure patients treated with peritoneal dialysis: A nine-year retrospective study. *Peritoneal Dialysis International*, 30: 218-226, 2010.
16. Honda, H, Qureshi, AR, Axelsson, J, Heimbürger, O, Suliman, ME, Barany, P, Stenvinkel, P, Lindholm, B: Obese sarcopenia in patients with end-stage renal disease is associated with inflammation and increased mortality. *American Journal of Clinical Nutrition*, 86: 633-638, 2007.
17. Jassal, SV, Douglas, JF, Stout, RW: Prognostic markers in older patients starting renal replacement therapy. *Nephrology Dialysis Transplantation*, 11: 1052-1057, 1996.
18. Johansen, KL, Chertow, GM, Jin, C, Kutner, NG: Significance of frailty among dialysis patients. *Journal of the American Society of Nephrology*, 18: 2960-2967, 2007.
19. Joly, D, Anglicheau, D, Alberti, C, Nguyen, AT, Touam, M, Grunfeld, JP, Jungers, P: Octogenarians reaching end-stage renal disease: Cohort study of decision-making and clinical outcomes. *Journal of the American Society of Nephrology*, 14: 1012-1021, 2003.
20. Kim, H, An, JN, Kim, DK, Kim, MH, Kim, YL, Park, KS, Oh, YK, Lim, CS, Kim, YS, Lee, JP: Elderly Peritoneal Dialysis Compared with Elderly Hemodialysis Patients and Younger Peritoneal Dialysis Patients: Competing Risk Analysis of a Korean Prospective Cohort Study. *PLoS One*, 10: e0131393, 2015.
21. Lacson, E, Li, NC, Guerra-Dean, S, Lazarus, M, Hakim, R, Finkelstein, FO: Depressive symptoms associate with high mortality risk and dialysis withdrawal in incident hemodialysis patients. *Nephrology Dialysis Transplantation*, 27: 2921-2928, 2012.
22. Lacson Jr, E, Li, NC, Dean, S, Maddux, FW: Depressive symptoms & hospitalization risk in incident hemodialysis patients. *American Journal of Kidney Diseases*, 61: A58, 2013.
23. Lopez Revuelta, K, Garcia Lopez, FJ, de Alvaro Moreno, F, Alonso, J, Castela, M, Alvarez-Ude Coter, F, Gimeno, I, Martinez Garcia, JM, Gago Gonzalez, E, Alonso, JLM, Hernandez, E, Bernal, D, Albalade, M, Galera, A, Martinez Camps, E, Donate Cubells, T, Portoles Perez, J, Gomez Roldan, C, del Pozo Fernandez, C, Fidalgo Gonzalez, A, Rodriguez, JA, Piera Robert, L, Fernandez, E, Garcia Ma, M, Lozano Maneiro, L, Uson, J, Galceran Gui, JM, Garcia Osuna, R, Galindo, P, Soriano, C, de Arriba, G, Monasor, A, Cruzado Garrit, JM, Virto Ruiz, R, Logrono Gonzalez, JM, Huarte Loza, E, Artamendi, M, Sanchez Tomero, JA, Cirugeda, A, Teruel, JL, Orofino, L, Diaz Corte, C, Monfa, JM, Hernandez, E, Pons, E, Mane, N, Sanchez, R, Pallardo Mateu, LM, Gorris Teruel, JL, Molina Miguel, A, Ruiz Erro, C, Viana Apraiz, F, Ruiz de Gauna, R, Minguela, JI, Montenegro Martinez, J, Lanzagarte, M, Sanjuan Hernandez-Franch, A, Martinez

- Rubio Ma, P: Perceived mental health at the start of dialysis as a predictor of morbidity and mortality in patients with end-stage renal disease (CALVIDIA study). *Nephrology Dialysis Transplantation*, 19: 2347-2353, 2004.
24. Mauri, JM, Cleries, M, Vela, E: Design and validation of a model to predict early mortality in haemodialysis patients. *Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association*, 23: 1690-1696, 2008.
25. McClellan, WM, Anson, C, Birkeli, K, Tuttle, E: Functional status and quality of life: predictors of early mortality among patients entering treatment for end stage renal disease. *J Clin Epidemiol*, 44: 83-89, 1991.
26. Rakowski, DA, Caillard, S, Agodoa, LY, Abbott, KC: Dementia as a predictor of mortality in dialysis patients. *Clinical journal of the American Society of Nephrology : CJASN*, 1: 1000-1005, 2006.
27. Soucie, JM, McClellan, WM: Early death in dialysis patients: Risk factors and impact on incidence and mortality rates. *Journal of the American Society of Nephrology*, 7: 2169-2175, 1996.
28. Thamer, M, Kaufman, JS, Zhang, Y, Zhang, Q, Cotter, DJ, Bang, H: Predicting Early Death Among Elderly Dialysis Patients: Development and Validation of a Risk Score to Assist Shared Decision Making for Dialysis Initiation. *Am J Kidney Dis*, 66: 1024-1032, 2015.
29. Fried, LP, Tangen, CM, Walston, J, Newman, AB, Hirsch, C, Gottdiener, J, Seeman, T, Tracy, R, Kop, WJ, Burke, G, McBurnie, MA, Cardiovascular Health Study Collaborative Research, G: Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci*, 56: M146-156, 2001.
30. Woods, NF, LaCroix, AZ, Gray, SL, Aragaki, A, Cochrane, BB, Brunner, RL, Masaki, K, Murray, A, Newman, AB, Women's Health, I: Frailty: emergence and consequences in women aged 65 and older in the Women's Health Initiative Observational Study. *J Am Geriatr Soc*, 53: 1321-1330, 2005.
31. Rockwood, K, Andrew, M, Mitnitski, A: A comparison of two approaches to measuring frailty in elderly people. *J Gerontol A Biol Sci Med Sci*, 62: 738-743, 2007.
32. Johansen, KL, Dalrymple, LS, Delgado, C, Kaysen, GA, Kornak, J, Grimes, B, Chertow, GM: Comparison of self-report-based and physical performance-based frailty definitions among patients receiving maintenance hemodialysis. *Am J Kidney Dis*, 64: 600-607, 2014.
33. Ferrucci, L, Guralnik, JM, Studenski, S, Fried, LP, Cutler, GB, Jr., Walston, JD, Interventions on Frailty Working, G: Designing randomized, controlled trials aimed at preventing or delaying functional decline and disability in frail, older persons: a consensus report. *J Am Geriatr Soc*, 52: 625-634, 2004.
34. Gobbens, RJ, van Assen, MA, Luijkx, KG, Wijnen-Sponselee, MT, Schols, JM: The Tilburg Frailty Indicator: psychometric properties. *J Am Med Dir Assoc*, 11: 344-355, 2010.
35. Schuurmans, H, Steverink, N, Lindenberg, S, Frieswijk, N, Slaets, JP: Old or frail: what tells us more? *J Gerontol A Biol Sci Med Sci*, 59: M962-965, 2004.
36. Churchill, DN, Wallace, JE, Ludwin, D, Beecroft, ML, Taylor, DW: A comparison of evaluative indices of quality of life and cognitive function in hemodialysis patients. *Controlled Clinical Trials*, 12: 159S-167S, 1991.

37. Mahoney, FI, Barthel, DW: Functional Evaluation: The Barthel Index. *Md State Med J*, 14: 61-65, 1965.
38. Yesavage, JA, Brink, TL, Rose, TL, Lum, O, Huang, V, Adey, M, Leirer, VO: Development and validation of a geriatric depression screening scale: a preliminary report. *J Psychiatr Res*, 17: 37-49, 1982.
39. Sheikh, JI, Yesavage, JA, Brooks, JO, 3rd, Friedman, L, Gratzinger, P, Hill, RD, Zadeik, A, Crook, T: Proposed factor structure of the Geriatric Depression Scale. *Int Psychogeriatr*, 3: 23-28, 1991.
40. Giordano, M, Tirelli, P, Ciarambino, T, Gambardella, A, Ferrara, N, Signoriello, G, Paolisso, G, Varricchio, M: Screening of depressive symptoms in young-old hemodialysis patients: relationship between Beck Depression Inventory and 15-item Geriatric Depression Scale. *Nephron Clin Pract*, 106: c187-192, 2007.
41. Kok, RM: [Self-evaluation scales for depression in the elderly]. *Tijdschr Gerontol Geriatr*, 25: 150-156, 1994.
42. Troidle, L, Wuerth, D, Finkelstein, S, Kliger, A, Finkelstein, F: The BDI and the SF36: which tool to use to screen for depression? *Adv Perit Dial*, 19: 159-162, 2003.
43. Balogun, RA, Turgut, F, Balogun, SA, Holroyd, S, Abdel-Rahman, EM: Screening for depression in elderly hemodialysis patients. *Nephron Clin Pract*, 118: c72-77, 2011.
44. Kimmel, PL: Depression in patients with chronic renal disease: what we know and what we need to know. *J Psychosom Res*, 53: 951-956, 2002.
45. Painter, P, Marcus, RL: Assessing physical function and physical activity in patients with CKD. *Clin J Am Soc Nephrol*, 8: 861-872, 2013.
46. Thompson, P, Blessed, G: Correlation between the 37-item mental test score and abbreviated 10-item mental test score by psychogeriatric day patients. *Br J Psychiatry*, 151: 206-209, 1987.
47. Tiffin-Richards, FE, Costa, AS, Holschbach, B, Frank, RD, Vassiliadou, A, Kruger, T, Kuckuck, K, Gross, T, Eitner, F, Floege, J, Schulz, JB, Reetz, K: The Montreal Cognitive Assessment (MoCA) - a sensitive screening instrument for detecting cognitive impairment in chronic hemodialysis patients. *PLoS One*, 9: e106700, 2014.
48. Detsky, AS, Baker, JP, Mendelson, RA, Wolman, SL, Wesson, DE, Jeejeebhoy, KN: Evaluating the accuracy of nutritional assessment techniques applied to hospitalized patients: methodology and comparisons. *JPEN J Parenter Enteral Nutr*, 8: 153-159, 1984.
49. Workgroup, KD: K/DOQI clinical practice guidelines for cardiovascular disease in dialysis patients. *Am J Kidney Dis*, 45: S1-153, 2005.