ΣΥΓΧΡΟΝΑ ΘΕΜΑΤΑ ΝΕΦΡΟΛΟΓΙΑΣ
ΕΚΠΤΩΣΗ ΝΟΗΤΙΚΩΝ ΛΕΙΤΟΥΡΓΙΩΝ ΣΕ ΑΣΘΕΝΕΙΣ ΜΕ ΧΝΝ

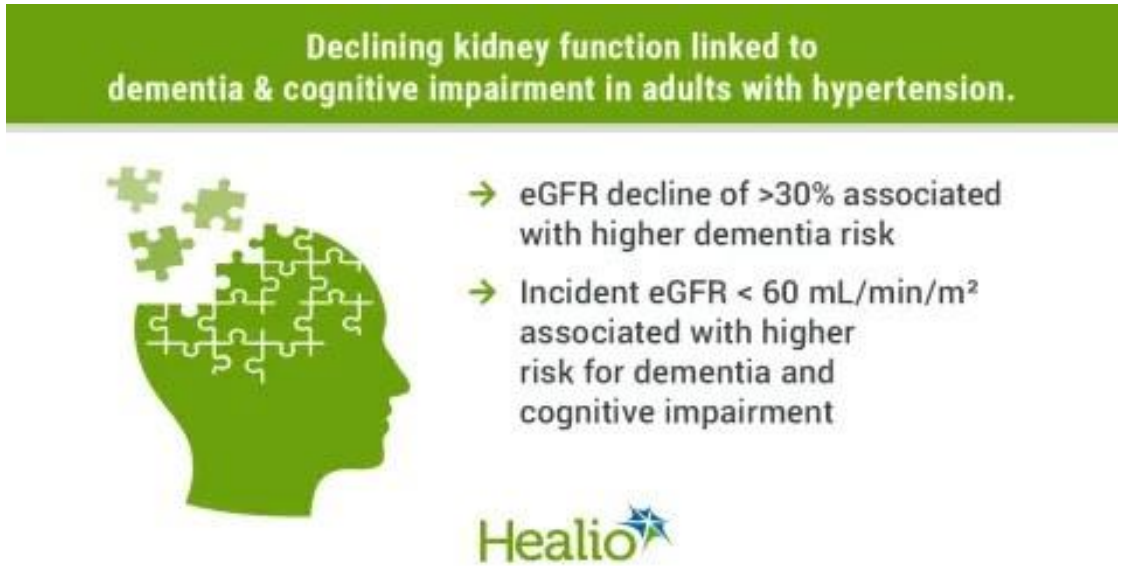
Η Ελληνική εμπειρία

Δέσποινα Καρασαββίδου
Νεφρολόγος

ΟΡΙΣΜΟΣ ΓΝΩΣΤΙΚΗΣ ΛΕΙΤΟΥΡΓΙΑΣ

- Ο όρος «γνωστική επάρκεια» αναφέρεται στις ανώτερες φλοιϊκές λειτουργίες του ατόμου, όπως μνήμη, κρίση, προσανατολισμός, αφαιρετική ικανότητα και εναισθησία.
- Η γενική κατάσταση της γνωστικής επάρκειας ενός ατόμου αντικατοπτρίζει την ικανότητα του να επεξεργάζεται το σύνολο των πληροφοριών που δέχεται.
- Η προοδευτική έκπτωση των ανωτέρων φλοιϊκών λειτουργιών του ατόμου ορίζεται ως γνωστική δυσλειτουργία και άνοια.

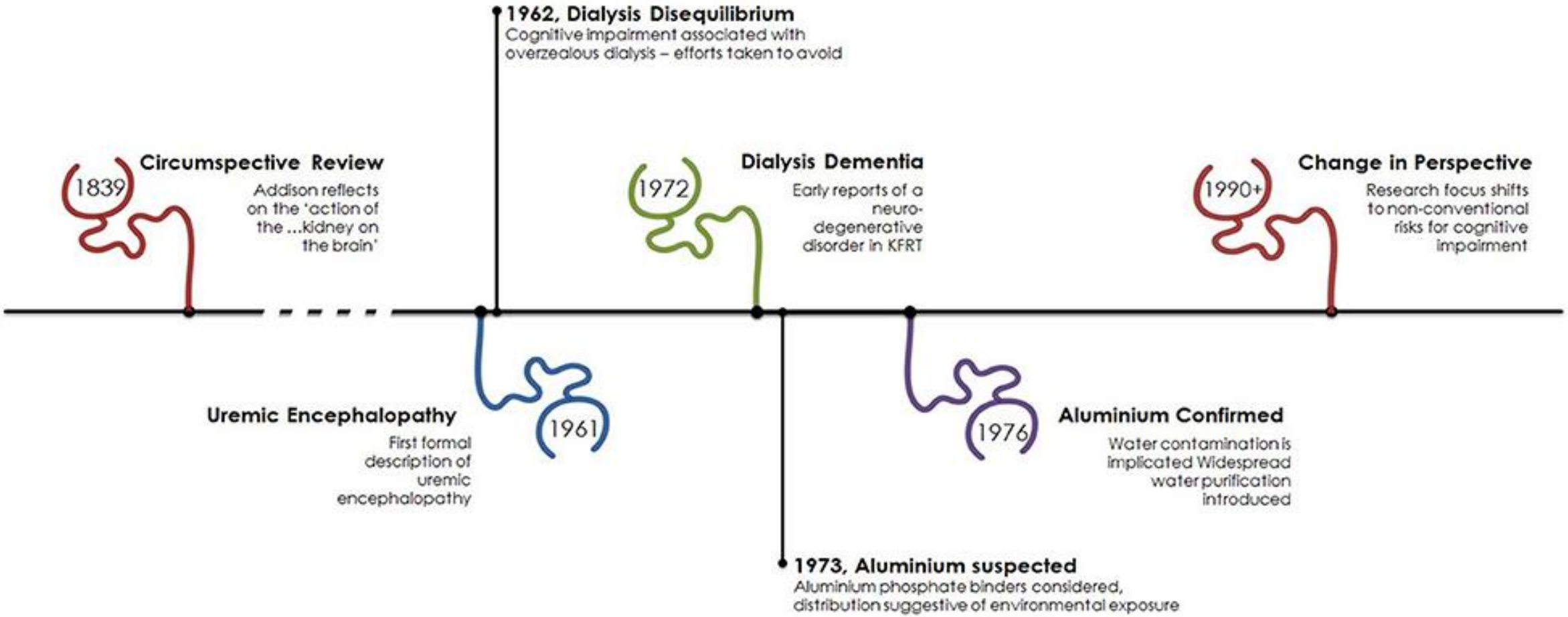
ΠΡΕΠΕΙ ΝΑ ΕΚΤΙΜΗΣΟΥΜΕ ΤΗΝ ΓΝΩΣΤΙΚΗ ΛΕΙΤΟΥΡΓΙΑ ΤΩΝ ΑΣΘΕΝΩΝ ΜΑΣ?



- ✓ Αυτό-φροντίδα, αυτάρκεια
- ✓ Λήψη αποφάσεων
- ✓ Συμμόρφωση σε ιατρικές οδηγίες-εκπαίδευση σε εξωνεφρική κάθαρση

- ✓ Αυξημένη νοσηλεία
- ✓ Θνητότητα
- ✓ Κατάθλιψη

"Has Long Been Known..."—The History of Cognitive Impairment in Kidney Failure

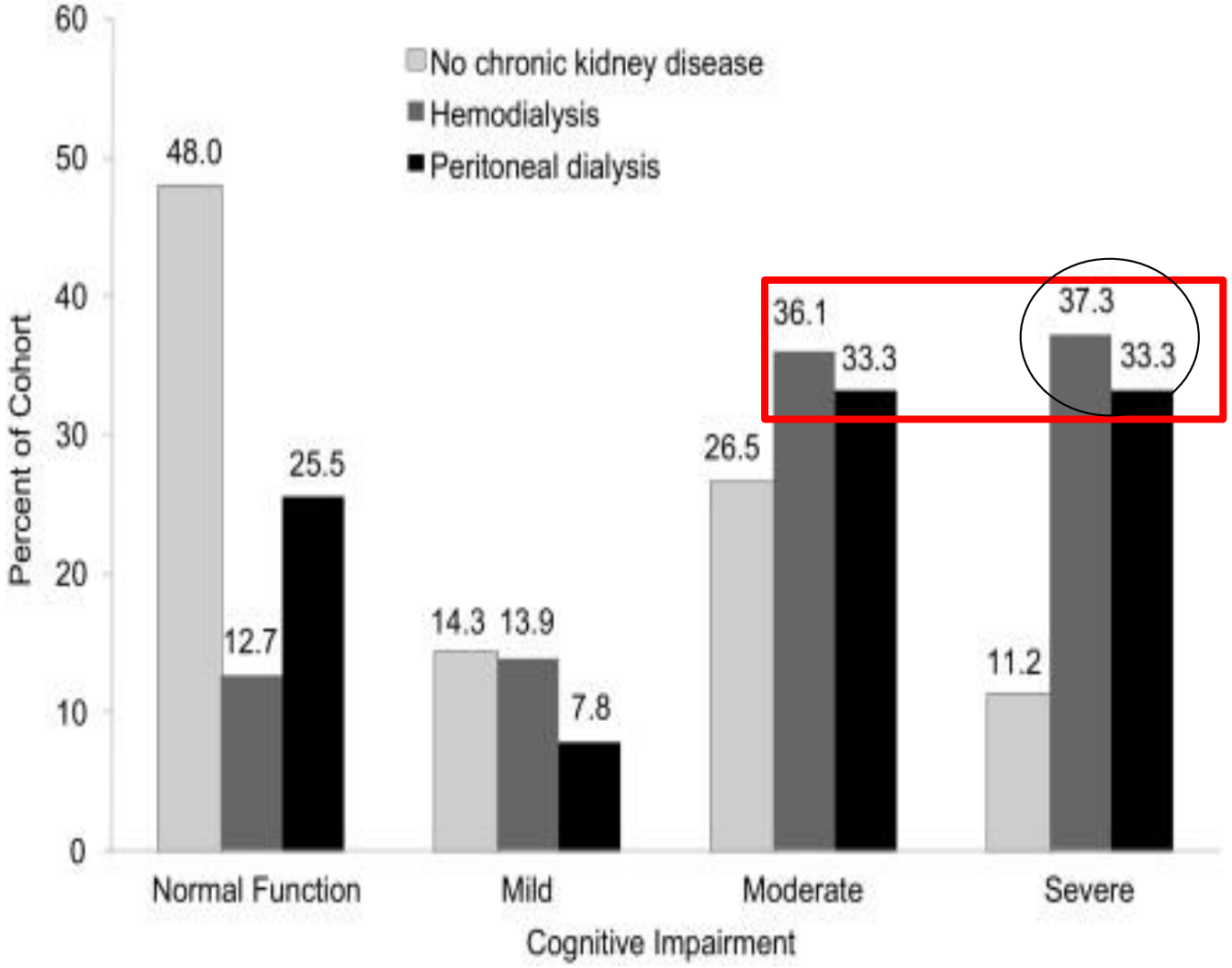


ΕΚΤΙΜΗΣΗ ΓΝΩΣΤΙΚΗΣ ΛΕΙΤΟΥΡΓΙΑΣ ΑΦΟΡΑ ΤΟΥΣ ΝΕΦΡΟΛΟΓΟΥΣ?

Cognitive impairment in hemodialysis patients is common

A. M. Murray, D. E. Tupper, D. S. Knopman, D. T. Gilbertson, S. L. Pederson, S. Li, G. E. Smith, A. K. Hochhalter, A. J. Collins, R. L. Kane

First published July 24, 2006, DOI:
https://doi.org/10.1212/01.wnl.0000225182.15532.40



- Ο επιπολασμός της ΓΔ στην ΧΝΝ είναι από 10-40%
- Ενώ 50% των ασθενών σε αιμοκάθαρση έχουν γνωστική δυσλειτουργία

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https://doi.org/10.1007/s40620-021-01170-3

ORIGINAL ARTICLE

Assessment of cognitive impairment and related risk factors in hemodialysis patients

Hristos Karakizlis[1,2] · Katharina Bohl[3] · Jannis Ziemek[4] · Richard Dodel[3,4] · Joachim Hoyer[1]

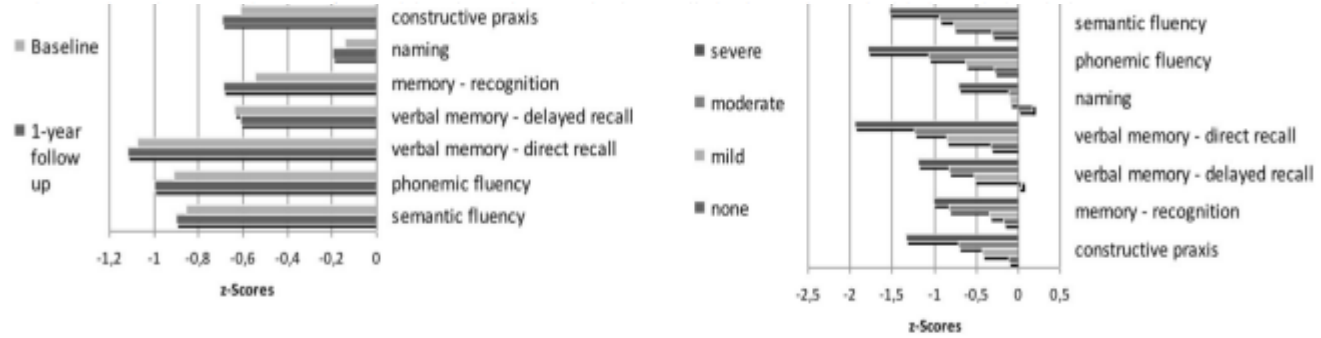
Received: 7 July 2021 / Accepted: 17 September 2021 / Published online: 16 October 2021

Abstract

Background Cognitive impairment in hemodialysis patients has been acknowledged over the last years and has been reported in up to 80% of patients. Older age, high prevalence of cardiovascular risk factors, such as stroke and transient ischemic attack, uremia, and multiple metabolic disturbances represent the most common factors for cognitive impairment in hemodialysis patients.

Methods We conducted a prospective cohort study on 408 patients from 10 hemodialysis centers in the regional government district of Middle Hesse (Germany). Patients underwent a neuropsychological test battery consisting of five tests, in addition to a phonemic fluency test, to assess cognitive profile. The patients were classified as no cognitive impairment or mildly-, moderately- or severely-impaired cognitive function, depending on the degree of impairment and number of domains where the deficit was determined. We analyzed the cognitive profile and the change in performance over time in hemodialysis patients based on their cognitive status at baseline vs. 1-year follow-up.

Results Of 479 eligible patients, 408 completed all tests at baseline. Only 25% (n = 102) of the patients had no cognitive impairment. Fourteen per cent (n = 57), 36.5% (n = 149), and 24.5% (n = 100) of patients showed mild, moderate, and severe impairment, respectively. In patients with cognitive impairment, all cognitive domains were affected, and impairment was significantly associated with depression and education. The most impaired cognitive performance was immediate memory recall, and the best performance was found in naming ability. No significant change was observed after 1-year follow up in any domain.



Από το παρελθόν στο παρών

Η Ελληνική εμπειρία

ΕΚΤΙΜΗΣΗ ΓΝΩΣΤΙΚΗΣ ΛΕΙΤΟΥΡΓΙΑΣ

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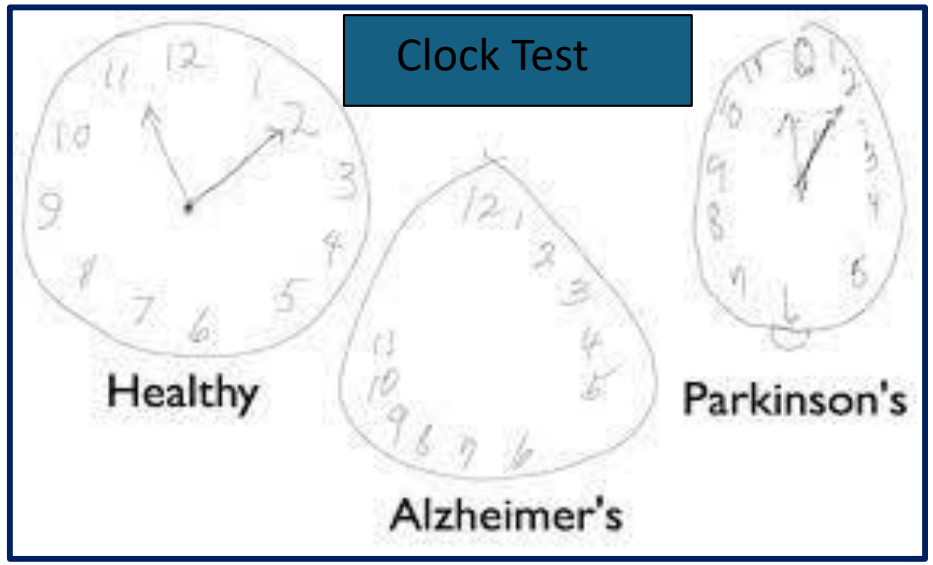

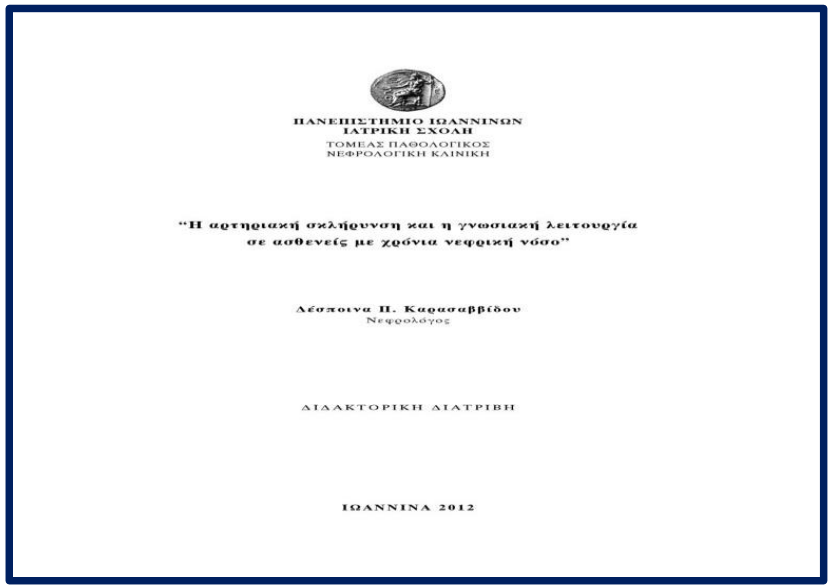
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ΙΑΤΡΙΚΗ ΣΧΟΛΗ
ΤΟΜΕΑΣ ΠΑΘΟΛΟΓΙΚΟΣ ΝΕΦΡΟΛΟΓΙΚΗ ΚΛΙΝΙΚΗ

"Η αρτηριακή σκλήρυνση και η γνωσιακή λειτουργία σε ασθενείς με χρόνια νεφρική νόσο"

Δέσποινα Π. Καρασαββίδου
Νεφρολόγος

ΔΙΔΑΚΤΟΡΙΚΗ ΔΙΑΤΡΙΒΗ

ΙΩΑΝΝΙΝΑ 2012

Πίνακας 25. Αλγόριθμος της γνωστικής λειτουργίας

	M.M.S.E	Clock-test	I.A.D.L
Φυσιολογική γνωστική λειτουργία	27-30	7	9
Ήπια γνωστική δυσλειτουργία	20-26	5-6	10-18
Μέτρια γνωστική δυσλειτουργία	11-19	3-5	19-23
Σοβαρού βαθμού γνωστική δυσλειτουργία	0-10	<3	>23

Πίνακας 4. Ερμηνεία των κλιμάκων της γνωστικής λειτουργίας

Ερωτηματολόγια	Περιεχόμενο	Κλίμακες εκτίμησης
GDS	15 ερωτήσεις με επιλογή είτε την απάντηση ναι είτε την απάντηση όχι	Ναι= κατάθλιψη Όχι= όχι κατάθλιψη
AMTS	10 ερωτήσεις νοητικής επίδοσης	< 8 = διαταραχή ψυχικής λειτουργίας 10=φυσιολογικά ευρήματα
NPI	5 ερωτήσεις με διαβάθμιση τη συχνότητα και τη σοβαρότητα της νευροψυχιατρικής διάθεσης	Νευροψιαχιατρική διάθεση, συχνότητα και σοβαρότητα
Clock Drawing Test	Δοκιμασία ωρολογίου	5-7=αρχόμενη άνοια 0-5=γνωστική ανεπάρκεια
MMSE	30 ερωτήσεις νοητικής κατάστασης	0-10= σοβαρή ανοϊκή διαταραχή 11-19= μέτρια ανοϊκή διαταραχή 20-24= ελαφρά ανοϊκή διαταραχή 25-27= ένδειξη γνωστικής ανεπάρκειας 28-30=φυσιολογικα ευρήματα
IADL	32 ερωτήσεις από 8 ενότητες που εκφράζουν την ικανότητα των καθημερινών δραστηριοτήτων	0-9=φυσιολογικά ευρήματα 10-18= ελαφρά ανοϊκή διαταραχή 19-23=μέτρια ανοϊκή διαταραχή >23=σοβαρή ανοϊκή διαταραχή

- **Modifiable and non-modifiable factors in patients with cognitive impairment in chronic kidney disease**September
- **Conference: 13th EFNS**
- **At: Florence, Italy,2009**

2009

Despina Karasavvidou[1], Rigas Kalaitzidis[1], Evangelia Dounousi[1], Konstantinos Katopodis[1], Xanthi Zikou[1], Kostas C. Siamopoulos[1], Athanasios Kyritsis[2], ***Sygkliti-Henrietta Pelidou[2]***Dept of Nephrology[1] and Dept of Neurology[2], University Hospital of Ioannina, Greece

- ***Introduction***Cognitive impairment is common in patients (pts) with chronic kidney disease and it has been sown to be associated with the degree of severity of renal failure. Unfortunately, because risk factors for cognitive impairment in chronic kidney disease (CKD) have not been thoroughly ascertained, evaluation of potential treatment has been limited. The etiology behind this impairment is multifactorial and includes factors such as age, those related to premature atherosclerosis, uremia, and hemodialysis (HD). Both symptomatic and occult, subclinical ischemic cerebrovascular disease appears to play a major role in a proposed model of accelerated vascular cognitive impairment in these populations.

- ***Objectives***The aim of our study was to assess cognitive impairment (CI) in HD and peritoneal dialysis (PD) pts and investigate whether there was a possible correlation between various parameters we tested.

- ***Methods***In this pilot, cross-sectional study 49 steady pts were included, 26 on HD and 23 on PD. Pts with previous stroke and depression were excluded. The mean age was 61±15 years with similar mean age for both modalities and 32 (65%) were men. Cognitive function (CF) was evaluated by using 4 questioners standardized for the country general population [Geriatric Depression Scale (GDS), Abbreviated Mental Test Score (AMTS), Clock Test and Instrumental Activity of Daily Living (IADL)], before the middle week HD session and during a regular visit for the PD pts.

- ***Patients***Thirty two (65%) out of the overall pts were hypertensives (HTs) receiving treatment (43% ACEi/ARB, 43% CCB), 14 (29%) had diabetes mellitus (DM), 10 (20%) had established CV disease (CVD), 35 (71%) pts were receiving vit D analogs and 20 (41%) statins , 7 (14%) were smokers. Mean systolic, diastolic and pulse blood pressure (BP) was 133±21, 78±11 and 55±20 mmHg respectively (without significant difference between HD and PD pts), while mean Kt/V (adequacy of dialysis) was 1.3±0.22 and 2.3±0.7 in HD and PD pts, respectively

ΑΠΟΤΕΛΕΣΜΑΤΑ

Results :
PD pts revealed significant better Clock test than HD pts (¼ had dementia and ¾ had cognitive impairment while in HD pts it was the opposite, p<0.001).
CVD pts had worse CF (IADL score 20±8.17 vs 13.4±6.51, p=0.009) and all diabetics had mild dementia.(IADL p<0,004,Clock test p<0,002) HTs had similar CF scores compared with non-HTs Interestingly, pts receiving CCB and vit D analogs had significantly better CF (Clock test p=0.003, p=0.03) while treatment with ACEi/ARB and statins did not affect CF. Smokers had cognitive dysfunction (IADL p<0.001, Clock test p=0.001)

- ✓ 75% των ασθενών στην αιμοκάθαρση πάσχουν από κάποιας μορφής γνωστική δυσλειτουργία

Ελληνική Νεφρολογία 2012; 24 (2): 118 - 126

Ανασκόπηση

Η γνωστική δυσλειτουργία στη χρόνια νεφρική νόσο: ένας παράγοντας που παραμένει συχνά αδιάγνωστος

Δ. Καρασαββίδου[1]
Ρ.Γ. Καλαϊτζίδης[1]
Σ-Ε. Πελίδου[2]
Κ.Χ. Σιαμόπουλος[1]

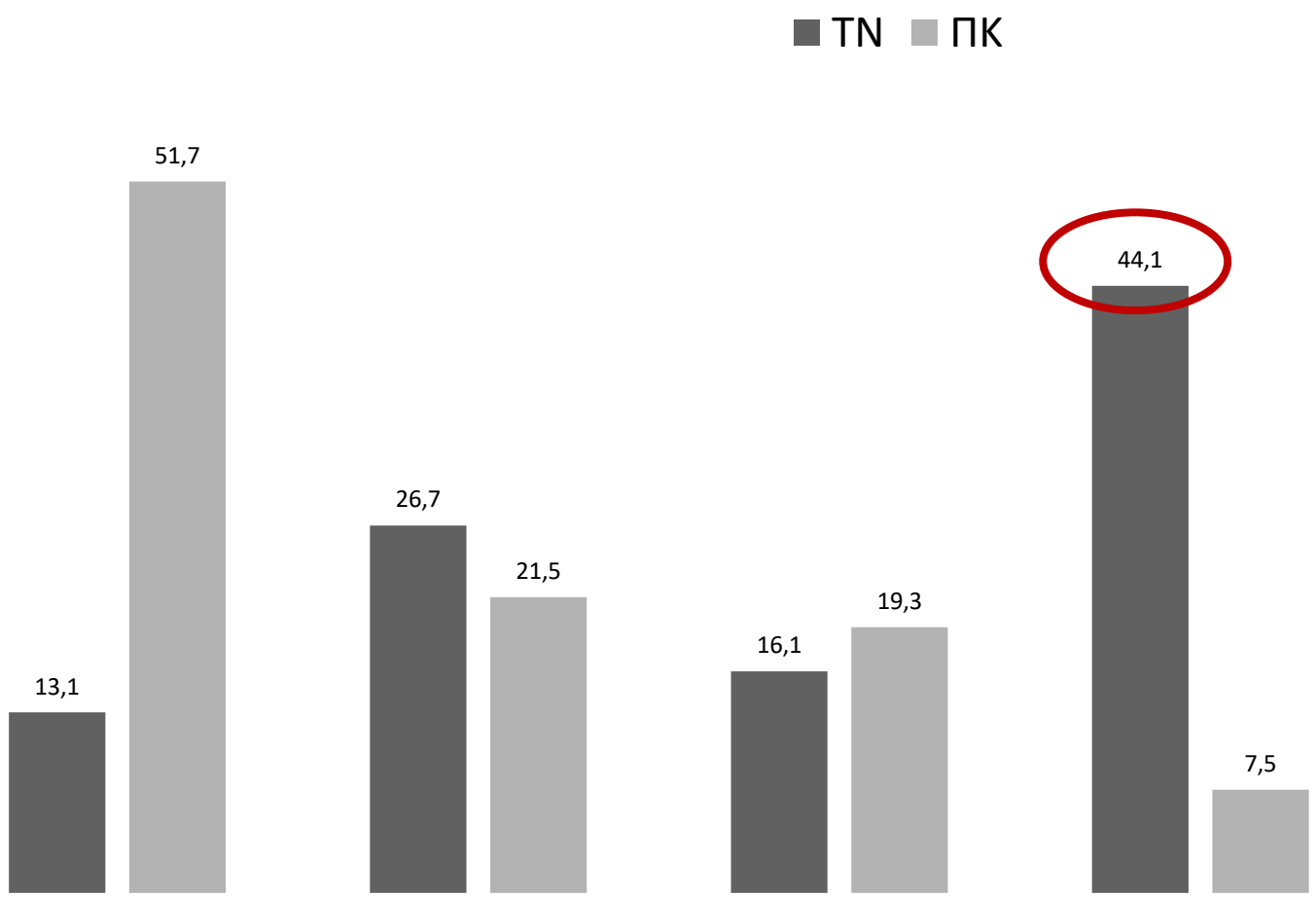
Περίληψη

Οι ασθενείς με χρόνια νεφρική νόσο (ΧΝΝ) παρουσιάζουν συχνότερα νοητικές διαταραχές και έχουν πιθανότητα να υποστούν νοητική έκπτωση κατά 3.5 φορές περισσότερο σε σύγκριση με τα άτομα της ίδιας ηλικίας του γενικού πληθυσμού. Ωστόσο, μόλις την τελευταία δεκαετία έχει αναγνωριστεί αυτή η υψηλή επιβάρυνση της νοητικής λειτουργίας σε αυτούς τους ασθενείς. Πρόσφατα έχει πε-

Η γνωστική δυσλειτουργία στην ΧΝΝ είναι ένας παράγοντας συχνά αδιάγνωστος παρά το γεγονός ότι κάθε νεφρολόγος αφιερώνει μέσο όρο 47 min στον ασθενή του (τρεις φορές την εβδομάδα επίσκεψη)

Αποτελέσματα της Διδακτορικής Διατριβής

ΑΠΟΤΕΛΕΣΜΑΤΑ ΔΙΔΑΚΤΟΡΙΚΗΣ ΔΙΑΤΡΙΒΗΣ ΣΤΗΝ ΕΞΩΝΕΦΡΙΚΗ ΚΑΘΑΡΣΗ



2011

PP.8.188 MICROALBUMINURIA IN THE GENERAL POPULATION: ITS PREVALENCE AND CLINICAL SIGNIFICANCE

S. Tanaka[1], H. Takase[2], Y. Dohi[1], G. Kimura[1]. [1]*Nagoya City University Graduate School of Medical Sciences, Nagoya-Japan,* [2]*Ensha Hospital, Hamamatsu-Japan*

Purpose: Microalbuminuria is a well established marker of cardiovascular risk. Recent studies have shown that even small increases in urine excretion of albumin within 'normal level' (below the theeshold level adopted to define microalbuminuria) correlate with future cardiovascular events. The present study was designed to investigate the prevalence of microalbuminuria and factors that associate with urine excretion of albumin in the general population.

Methods: Participants in a health checkup program in our hospital were enrolled in this study (n = 7,124, 56.4 ± 11.8 years old). Besides the routine checkup program (an interview regarding health status, physical examination, chest X-ray, electrocardiography, and laboratory assessment of cardiovascular risk factors), urine samples were collected for the measurement of albumin concentrations, which were expressed as the ratio of urine albumin to creatinine concentrations (UACR [mg/g Cr]). Cross-sectional analyses were performed to investigate relationships between UACR and other variables. The analytical range of UACR was ≥ 5 mg/g Cr and individual salt intake was assessed by estimating 24 hours urinary salt excretion, which was calculated by a previously reported formula.

Results: The blood pressure of participants was 126 ± 16/77 ± 10 mmHg and 30.4% and 9.1% of participants were with hypertension and diabetes mellitus, respectively. Urine albumin was detected in 2,856 subjects (40.1%) (30 > UACR ≥ 5 mg/g Cr, 35.0%; UACR ≥ 30 mg/g Cr, 5.1%). Multivariate regression analysis revealed that abnormal albuminuria (UACR ≥ 30 mg/g Cr) was correlated with systolic blood pressure, estimated 24 hours urinary salt excretion, and fasting plasma glucose after adjustment for possible factors ($p < 0.0001$). In participants with detectable albuminuria (UACR ≥ 5 mg/g Cr, n = 2,856), UACR was independently correlated with systolic blood pressure, estimated 24 hours urinary salt excretion, uric acid, and fasting plasma glucose ($p < 0.01$). Similar results were obtained in analyses performed in a subgroup of participants without any medication (n = 4,563).

Conclusions: The prevalence of microalbuminuria was about 5% in the general population. The urinary excretion of albumin was closely associated with blood pressure and salt intake, suggesting the importance of salt restriction for the prevention of end-stage renal disease and cardiovascular disease.

PP.8.189 RELATIONSHIP BETWEEN OXIDATIVE STRESS AND AORTIC STIFFNESS IN HYPERTENSIVE PATIENTS WITH CHRONIC KIDNEY DISEASE

G. Mule', P. Cusimano, T. Viola, M. Costanzo, A.C. Foraci, A. Palermo, A. Castiglia, E. Nardi, G. Cerasola, S. Cottone. *Dipartimento Di Medicina Interna E Specialistica Università Di Palermo, Palermo- Italy*

Background: It is well know that arterial stiffness and oxidative stress are features of chronic kidney disease (CKD). Several studies have consistently demonstrated that arterial stiffness becomes progressively worse as CKD progresses and a negative correlation of oxidative stress with renal function has been described. There is also sound experimental evidence indicating that oxidative stress is involved in atherogenesis. The contribution of oxidative stress to aortic stiffness is less clear.

Objective: The aim of our study was to analyse the relationship between plasma levels of 8-ISO- prostaglandin F2alpha (8-ISO-PGF2alpha), an index of lipid peroxidation, considered a reliable biomarker of oxidative stress, and aortic stiffness in a group of hypertensive patients with chronic kidney disease.

Methods: We enrolled 90 pharmacologically treated hypertensive patients (mean age 59 ± 12 years, males 53%) with chronic kidney disease [estimated glomerular filtration rate (eGFR) < 60 ml/min/1.73m²]. In all the subjects routine biochemical parameters and 8-ISO-PGF2alpha plasma values, measured by a solid-phase specific sandwich enzyme-linked immunosorbent assay (Assay Design Inc), were obtained. Moreover, ambulatory blood pressure monitoring and measurement of c- f PWV, by a computerized automatic method (Complior), were performed. The GFR was estimated by the four-variable MDRD study equation.

Results: The study population comprised 90 hypertensive subjects with eGFR ranging from 60 to 15 ml/min/1.73m² (mean value: 37 ml/min/1.73m²). Thirty-one patients (34%) had type 2 diabetes. The patients (n = 41) with elevated values of c-f PWV (> 12 m/sec) showed significantly higher 8- ISO-PGF2alpha plasma levels than those of subjects with PWV < 12 m/sec (423.3 ± 117.8 vs 359.8 ± 105.9 pg/ml; p = 0.009 and p = 0.02, before and after adjustment for age, gender and mean arterial pressure). A statistical significant correlation was found between 8-ISO-PGF2alpha and c-f PWV in the whole study population ($r = 0.33$; $p = 0.001$). This association held even after adjustment for age, gender, mean arterial pressure, smoking habit, presence of diabetes (or glycaemia, as continuous variable), total cholesterol, calcium x phosphate product and eGFR (beta = 0.23; $p = 0.006$) in a stepwise multiple regression model.

Conclusions: Our results seem to suggest that in hypertensive subjects with CKD there is an independent relationship between oxidative stress and aortic stiffness and that the unfavourable influence of a reduced renal function on large artery elastic properties may be partly mediated by an increased oxidative stress.

PP.8.190 ARTERIAL STIFFNESS AND COGNITIVE FUNCTION IN CHRONIC KIDNEY DISEASE

D. Karasavvidou[1], R. Kalaitzidis[1], S-E. Pelidou[2], S. Kountouris[1], O. Balafa[1], K. Siamopoulos[1]. [1]*Department of Nephrology, University Hospital of Ioannina, Ioannina-Greece,* [2]*Department of Neurology, University of Ioannina, Ioannina-Greece*

Objective: Increased arterial stiffness (AS) is an independent prognostic factor for cardiovascular risk, both in the general population and patients with chronic kidney disease (CKD). On the other hand AS appears to be negatively related to cognitive function (CF) in the general population, while in patients with CKD data is few and contradictory. The prevalence of AS and CF as well as their relationship in CKD (stage 3-4), hemodialysis (HD) and peritoneal dialysis (PD) patients was investigated. Design: The AS was estimated by measuring pulse wave velocity (PWV) in the carotid-radial and carotid- femoral level. The CF was assessed in all patients using 5 different questionnaires, tailored to the characteristics of the country general population.

Methods: Ninety-three patients studied stable patients with CKD (44 in stage 3-4, 26 in HD and 23 in PD). The average age was 61 ± 15 years and 68% were males. AS measurements were performed before the regular session in the middle of the week for HD patients and at regular visits to others. At the same time, CFs were also recorded.

Results: The groups were comparable with similar demographic characteristics. The mean systolic, diastolic and pulse pressure were 133 ± 21, 78 ± 11 and 55 ± 20 mmHg, respectively. There was no statistically significant difference in measurements of PWV between the groups. Age showed a positive correlation with the PWV ($p < 0.05$). Negative correlation was found between the PWV and the parameters of URR ($r = -0.5$, $p < 0.05$) and Kt/V ($r = -0.464$, $p < 0.05$) in dialysis patients. CF was negatively affected even in CKD stages 3-4 patients. Patients undergoing HD showed cognitive impairment in 81%, as opposed to 22% of patients undergoing PD. The anti-hypertensive treatment had a positive effect on the CF. The cognitive impairment showed a positive correlation with age ($p = 0.001$), while all diabetic patients had cognitive impairment ($p < 0.05$). PWV divided [illegible] CF.

Conclusions: The AS, which was not particularly abnormal in our study (only 2 patients had PWV > 13 m/s) was negatively correlated with CF. The diabetic patients compared with non-diabetics had the worst CF. PD patients showed better CF than patients undergoing in HD.

PP.8.191 COMPARISON OF THE MDRD AND THE CKD-EPI EQUATIONS TO ESTIMATE THE GLOMERULAR FILTRATION RATE IN UNTREATED HYPERTENSIVE PATIENTS

A. Troshina[1], Y. Kotovskaya[2], N. Bagmanova[2], J. Koblava[2]. [1]*Russian People Frendship University, Dolgoprudni-Russia,* [2]*Russian People Frendship University, Moscow-Russia*

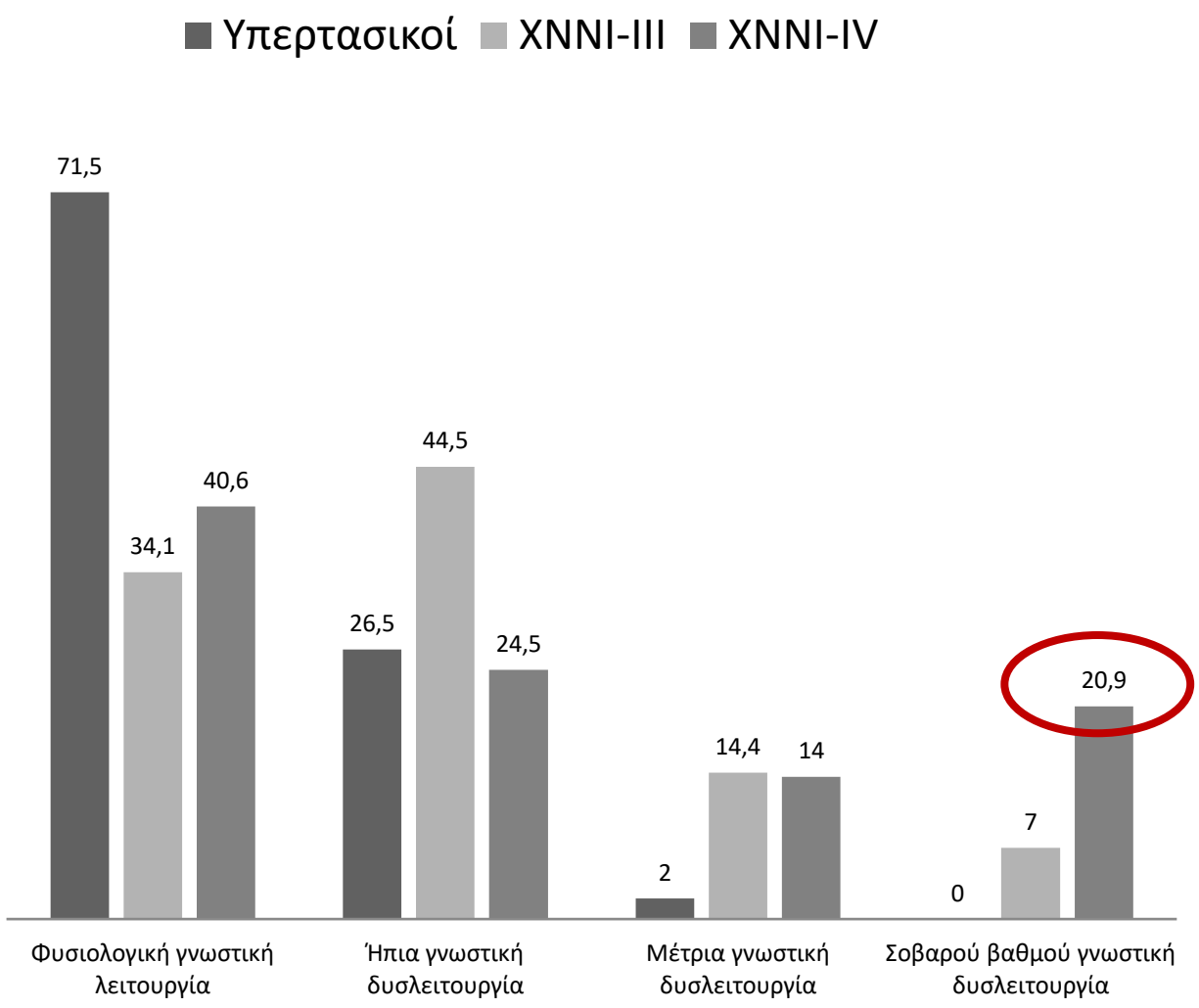
Objective: The Chronic Kidney Disease Epidemiology Collaboration (CDK-EPI) equation has been proposed as a replacement for the Modification of Diet in Renal Disease (MDRD) equation to estimate the glomerular filtration rate (eGFR). The aim of the study was to compare the results of GFR calculations by two equations in patients with untreated arterial hypertension with normal serum creatinine.

Methods: Cross-sectional evaluation of a sample of 101 (49 men) untreated hypertensive normoalbuminuric patients (age 53,5 ± 12,3 years) without known kidney disease was done. The prevalence of eGFR 60-90 mL/min/1.73m² (arterial hypertension with decreased GFR according NKF KDOQI 2002) was assessed with the MDRD and the CKD-EPI equations in men and women separately.

Results: With the MDRD equation the median eGFRs in men/women were 92,4 ± 20.0/88,9 ± 16.3 mL/min/1.73m², and with the CKD-EPI equation 91 ± 16,0/90,2 ± 14,9 mL/min/1.73m². Among men the prevalence eGFR 60-90

- PD patients had better CF than HD patients
- PWV was negatively corelated with CF

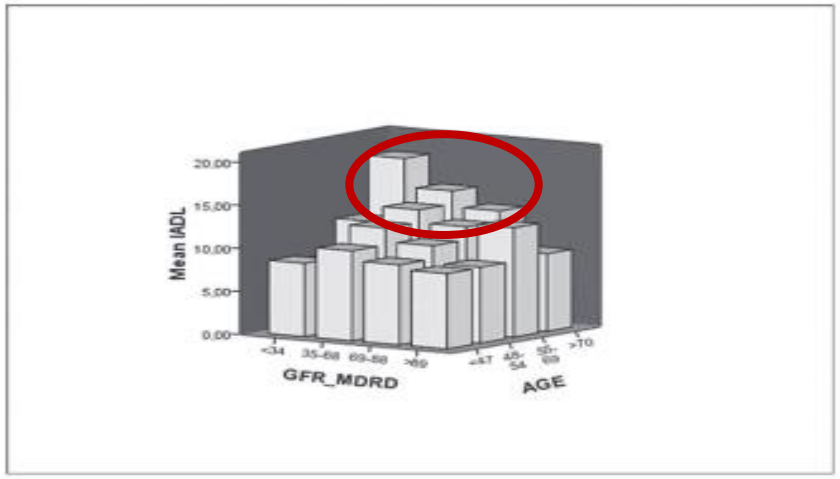
ΑΠΟΤΕΛΕΣΜΑΤΑ ΔΙΔΑΚΤΟΡΙΚΗΣ ΔΙΑΤΡΙΒΗΣ ΣΤΗΝ ΧΝΝ



PP.17.15 **PREVALENCE OF COGNITIVE DYSFUNCTION IN CHRONIC KIDNEY DISEASE**

D. Karasavvidou, D. Makridis, M. Skoularopoulou, C. Katsinas. *Nephrology Unit, Mpodosakeio Mamatsio General Hospital, Ptolemaida, GREECE*

Objective: Cognitive dysfunction (CD) is an independent risk factor for cerebrovascular events, heart failure and cardiovascular death. The aim of the present study was the detection and identification of CD (primary prevention) in patients with Chronic Kidney Disease (CKD).



Design and method: One hundred fifty-one patients were included in the study, of whom 44 patients with CKD stage I, 47 patients with stage II, 25 patients with stage III, and 35 patients with stage IV. Cognitive function was evaluated with the Mini Mental State Examination (MMSE), Clock Drawing Test (CDT), and Instrumental Activity of Daily living (IADL). The age of the patients was 58.4 years (64.5% men).

- Η γνωστική δυσλειτουργία ξεκινάει από τα πρώιμα στάδια της ΧΝΝ και ακολουθεί την εξέλιξη της ΧΝΝ
- Ο ηλικιωμενος ασθενής σε ΧΝΝ έχει τον ίδιο γνωστικό κίνδυνο με τον μεσήλικα

Journal of Hypertension

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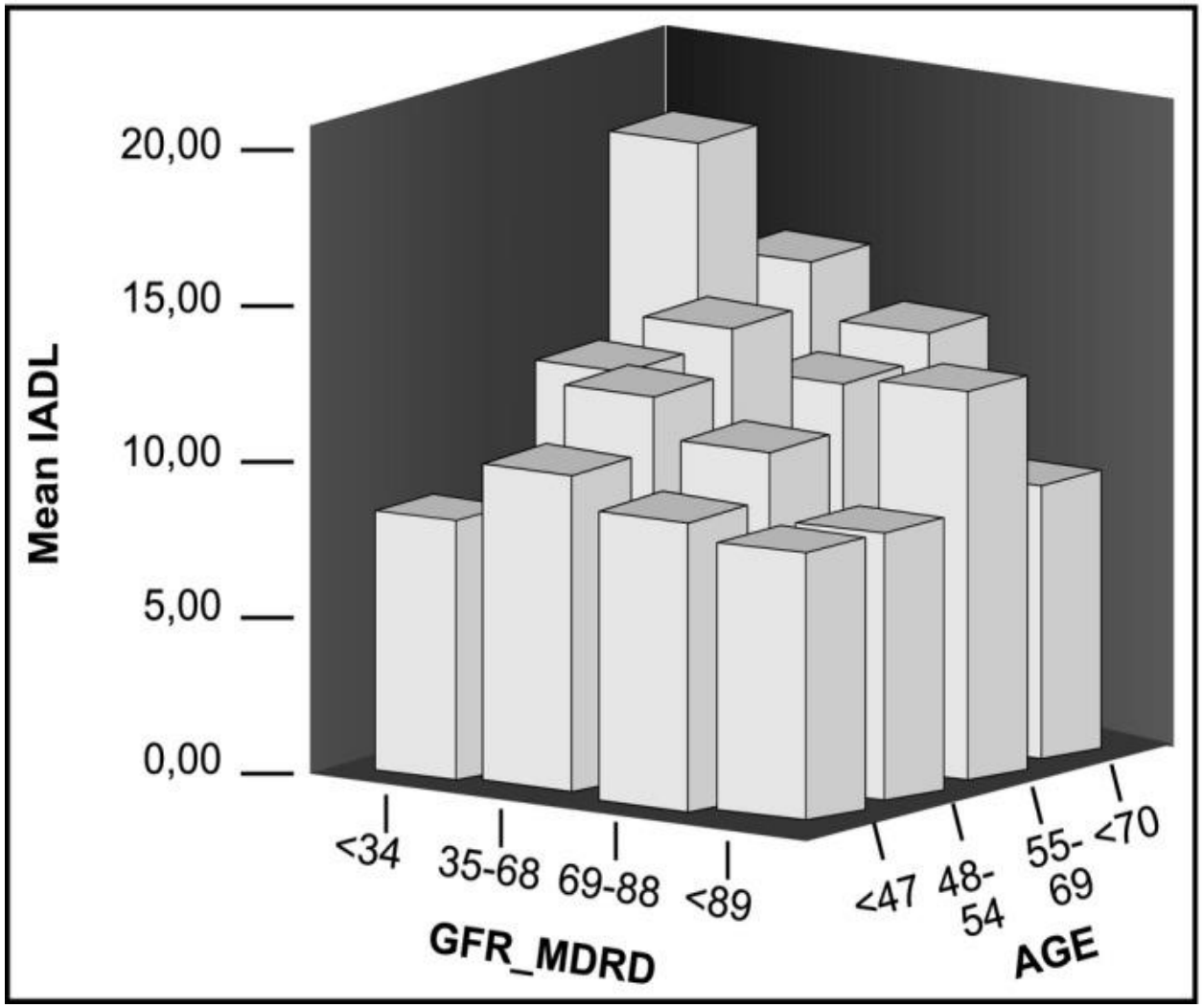

Int Urol Nephrol
DOI 10.1007/s11255-013-0450-y

NEPHROLOGY - ORIGINAL PAPER

Risk factors for cognitive dysfunction in CKD and hypertensive subjects

Rigas G. Kalaitzidis · Despina Karasavvidou · Athina Tatsioni · Olga Balafa · Kosmas Pappas · Giorgos Spanos · Sigkliti-Henrietta Pelidou · Kostas C. Siamopoulos

The main finding of the study was that in every CKD stage the risk of CO/DY increased more than twofold

Ο κίνδυνος για ΓΔ αυξάνεται κατά 2.5 φορές με κάθε αλλαγή σταδίου

Received: 24 September 2012 / Accepted: 12 April 2013

Screening of Cognitive Impairment in the Dialysis Population: A Scoping Review

2017

Aye San[a] Balaji Hiremagalur[a] Wendy Muircroft[b] Laurie Grealish[a, c]

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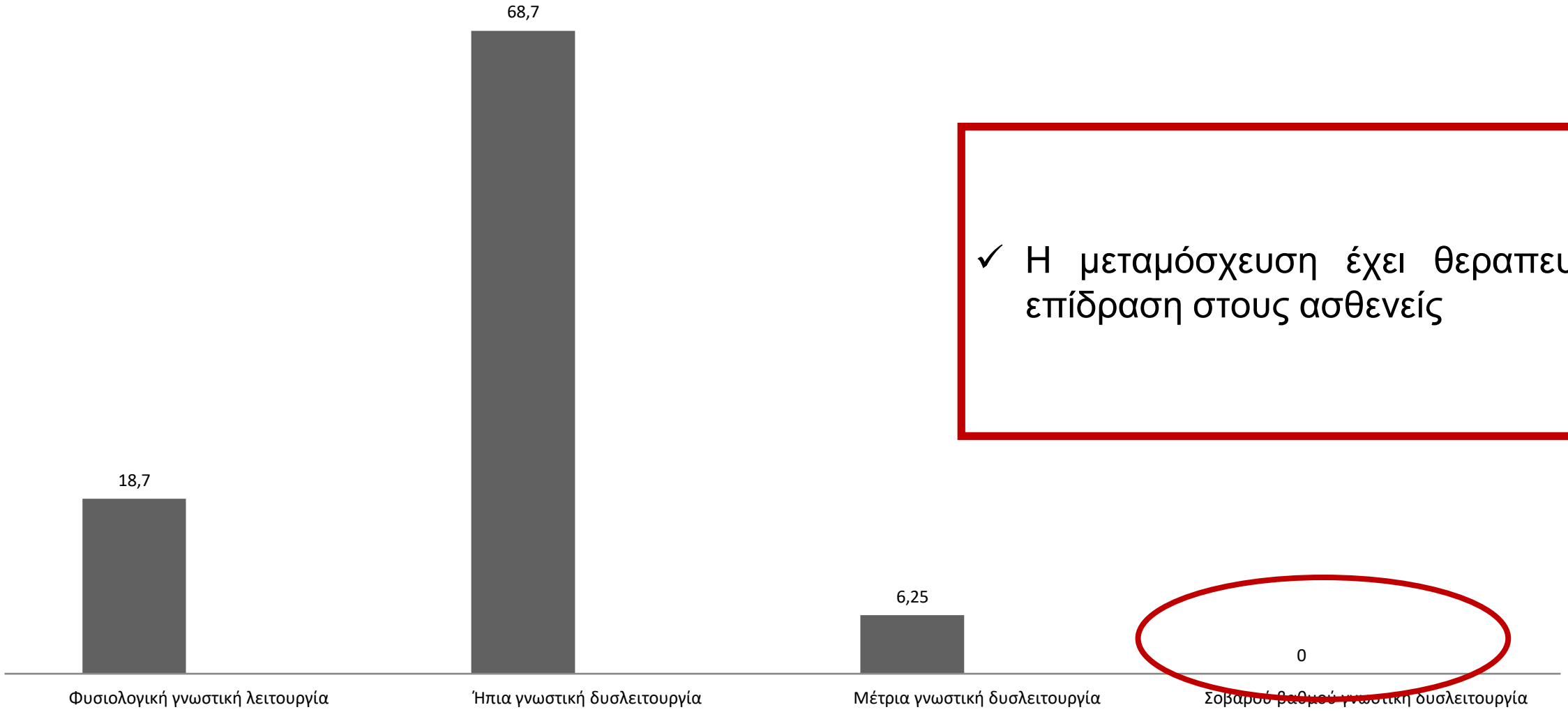
Reference (first author) and country of study	Study groups	Sample			Exclusion criteria of interest				Screening tools	Prevalence based on screening test	Assessment timing
		size	age, years	gender, M/F	advanced dementia	cerebro-vascular disease	psychiatric disease	lack of language fluency			
Harciarek [21], 2012, Poland	HD C	49 30	47.9±12.01 47.23±10.21	27/22 22/8	E	E	E	E	MMSE	MMSE HD: baseline: 28.57±0.98; 1st follow-up: 28.59±0.99; 2nd follow-up: 28.56±0.96	24 h after the last dialysis
Huang [22], 2008, Taiwan	HD	147	group I: 68±8.46; group II: 57.51±12.64	61/86	NR	NR	NR	NR	MMSE	MMSE scores NR	shortly before dialysis session
Isshiki [23], 2014, Japan	PD C	18 60	67.5±6.9 71.5±8.3	12/6 28/32	NR	E	NR	NR	MMSE	MMSE 27 or more: 14 (78%); 24–26: 3 (17%); 25 or less: 1 (5%)	not applicable
Jung [24], 2013, South Korea	HD PD C	29 27 12	55.8±8.7 52.4±11.6 44.7±10.7	13/16 14/13 11/1	E	NR	E	NR	MMSE	MMSE <24: HD: 7 (24.1%); PD: 3 (11.1%)	off dialysis, minimum 1 h from last dialysis treatment
Kalaitzidis [25], 2013, Greece	HBP CKD I, II CKD III CKD IV HD PD	96[b] 160[b]	53±1.51 50.2±11.8 63.1±9.4 64.1±12.2 60.4±13.8 58.6±15.7	62/35[b] 15/4[b] 20/9[b] 33/14[b] 17/14[b] 20/13[b]	NR	E	E	NR	MMSE	NR	on HD patients before dialysis session middle of the week
Kalirao [26], 2011, USA	PD HD C	51 338 101	57.5±14.8 71.2±9.5 68.5±9.6	34/17 183/155 44/57	NE	NE	E	E	3MS	3MS raw scores: PD: range 93–100, SD 6.7; HD: range 83–100, SD 8.6; C: range 94.3–100, SD 5.7	during off-dialysis time, with an interval of at least 2 h from the time of last dialysis
Kang [27], 2012, USA	HD PD CKD	70 17 82	52.6±14.6	110/59	E	E	E	NR	3MS	3MS: total: 91.7±7.4; SDB: 90.5±7.9; non-SDB: 92.8±6.8	HD: morning of a non-dialysis day at home
Kato [28], 2012, Japan	HD CKD C	57 26 17	69.4±3.8 66.6±14.7 66.6±4.1	29/28 18/8 5/12	NR	NR	NR	NR	MMSE	HD: 27.4±2.4; CKD: 25.8±2.4; C: 28±2	NR
Kitaguchi [29], 2011, Japan	HD	37	68.9±4.1	16/21	NR	NR	NR	NR	MMSE	MMSE 27.1±2.4	NR
Kobayashi [30], 2014, Japan	HD	54	67.8±11.3	33/21	NR	E	NR	NR	MMSE	MMSE 28 or more: 34 (63%); 25–27: 13 (24%); 24 or less: 7 (13%)	NR
Kutlay [31], 2001, Turkey	HD	84	mean: 42	47/37	NR	NE	NE	NR	MMSE	mild impairment (MMSE 18–23): 18 (21%); moderate to severe impairment (MMSE <18): 9 (11%)	at various times: before, during, after, and at intervals; immediate beginning and termination of dialysis avoided
Leinau [32], 2009, USA	HD	109	61±10	71/38	NE	NR	NR	E	MMSE	CI reported to be present in 41 (38%); breakup of the scores not provided	midweek, after the dialysis treatment was underway

Αποτελέσματα της Διδακτορικής Διατριβής στην μεταμόσχευση νεφρού



- ✓ Η μεταμόσχευση έχει θεραπευτική επίδραση στους ασθενείς

ΠΑΡΑΓΟΝΤΕΣ ΠΟΥ ΕΠΗΡΕΑΖΟΥΝ ΤΗΝ ΓΛ ΣΤΗΝ ΧΝΝ

Πίνακας 26. Μονοπαραγοντική και πολυπαραγοντική ανάλυση των παραγόντων για τις κλίμακες της γνωστικής λειτουργίας στα υπερτασικά άτομα και στη ΧΝΝ

Κλίμακες γνωστικής λειτουργίας	Παράγοντας	Μονοπαραγοντική ανάλυση *β* (95% CI) *p*	Πολυπαραγοντική ανάλυση *β* (95% CI) *p*
ΑΥ			
M.M.S.E	Ηλικία (έτη)	β=0.008 (0.002-0.015), p<0.01	β=0.006 (0.001-0.013), p<0.05
	Κάπνισμα	β=0.554 (0.056-1.053), p<0.03	β=0.480 (0.001-0.013), p<0.05
	ΣΔ	β=0.419 (0.035-0.803), p<0.033	NS
	ΠΠ ≤60 mmHg	β=0.204 (0.001-0.406), p<0.004	NS
Clock-Test	Ηλικία (έτη)	β=0.005 (0.001-0.009), p<0.002	NS
	Κάπνισμα	β=0.653 (0.343-0.963), p<0.001	β=0.620 (0.320-0.918), p<0.001
	ΠΠ ≤60 mmHg	β=0.202 (0.007-0.331), p<0.003	β=0.172 (0.047-0.297), p<0.007
	ΣΔ	β=0.483 (0.243-0.722), p<0.001	NS
I.A.D.L	Ηλικία (έτη)	β=0.014 (0.009-0.019), p<0.001	β=0.012 (0.006-0.017), p<0.001
	Κάπνισμα	β=0.511 (0.076-0.948), p<0.002	β=0.376 (0.012-0.765), p<0.05
	ΠΠΡ ≤60 mmHg	β=0.269 (0.009-0.442), p<0.003	β=0.162 (0.001-0.324), p<0.05
	ΣΔ	β=0.490 (0.159-0.820), p<0.001	NS
	Μονοθεραπεία CCBs	β=0.268 (0.077-0.459), p<0.006	β=0.167 (0.010-0.341), p<0.344
ΧΝΝ 1-3			
M.M.S.E	ΣΔ	β=0.157 (0.002-0.313), p<0.04	NS
Clock-Test	Ηλικία (έτη)	β=0.07 (0.001-0.013), p<0.02	NS
	Hb <11 (g/dl)	β=0.240 (0.027-0.454), p<0.02	NS
	PTH (pg/ml)	β=0.002 (0.002-0.003), p<0.001	β=0.002(0.001-0.003), p<0.001
	MDRD (ml/min/1.7m^2)	β=-0.004 (-0.007-001), p<0.006	NS
I.A.D.L	ΣΔ	β=0.157 (0.002-0.313), p<0.04	β=0.184(0.345-0.333), p<0.01
	PTH (pg/ml)	β=0.001 (0.001-0.002), p<0.02	β=0.001(0.001-0.002), p<0.009
ΧΝΝ 4			
M.M.S.E	Ηλικία (έτη)	β=0.016 (0.004-0.027), p<0.01	β=0.012 (0.001-0.025), p<0.05
	ΣΔ	β=0.288 (0.023-0.553), p<0.03	NS
Clock-Test	Ηλικία (έτη)	β=0.015 (0.004-0.027), p<0.001	β=0.012(0.001-0.029), p<0.05
	ΣΔ	β=0.299 (0.03-0.555), p<0.02	NS
I.A.D.L	ΣΔ	β=0.251 (0.119-0.383),p<0.001	NS

ΠΑΡΑΓΟΝΤΕΣ ΠΟΥ ΕΠΗΡΕΑΖΟΥΝ ΤΗΝ ΓΛ ΣΤΗΝ ΕΞΩΝΕΦΡΙΚΗ ΚΑΘΑΡΣΗ

Πίνακας 27. Μονοπαραγοντική και πολυπαραγοντική ανάλυση των παραγόντων για τις κλίμακες της γνωστικής λειτουργίας στην εξωνεφρική κάθαρση

Κλίμακες γνωστικής λειτουργίας	Παράγοντας	Μονοπαραγοντική ανάλυση β (95% CI) p	Πολυπαραγοντική ανάλυση β (95% CI) p
ΤΝ			
M.M.S.E	Ηλικία (έτη)	β=0.007 (0.004-0.001), p<0.001	β=0.09 (0.002-0.016), p<0.01
	Hb <11 (g/dl)	β=0.223 (0.123-0.324), p<0.001	β=0.228 (0.007-0.449), p<0.04
	Διάρκεια ΑΜΚ (>24 μήνες)	β=0.356 (0.052-0.659), p<0.02	β=0.439 (0.240-0.758), p<0.001
	Βιταμίνη D	β-=0.380 (0.036-0.725, p<0.03	β=0.494 (0.244-0.758), p<0.01
Clock-Test	Ηλικία (έτη)	β=0.010 (0.007-0.013), p<0.001	β=0.009 (0.007-0.012), p<0.0001
	Hb <11 (g/dl)	β=0.237 (0.124-0.351), p<0.001	β=0.188 (0.082-0.294), p<0.001
I.A.D.L	Ηλικία (έτη)	β=0.02 (0.001-0.004), p<0.02	β=0.009 (0.003-0.016), p<0.03
	Kt/V >1.2	β=-0.331(0.596-0.066), p<0.01	β=-0.279 (-0.530-0.021), p<0.03
ΠΚ			
M.M.S.E	Ηλικία (έτη)	β=0.001(0.002-0.022), p<0.001	NS
Clock-Test	Ηλικία (έτη)	β= 0.012 (0.022-0.022), p<0.01	β=0.009 (0.001-0.019), p<0.05
	Hb <11 (g/dl)	β=0.354(0.05-0.656), p<0.023	NS

RESEARCH ARTICLE

Adherence to Treatment, Arterial Stiffness and Cognitive Function in Irbesartan-Treated Newly Diagnosed Hypertensive Patients

Rigas G. Kalaitzidis[1,*], Olga Balafa[1], Evangelia Dounousi[1], Dimitrios Stagikas[1] and Vasilios Tsimihodimos[1]

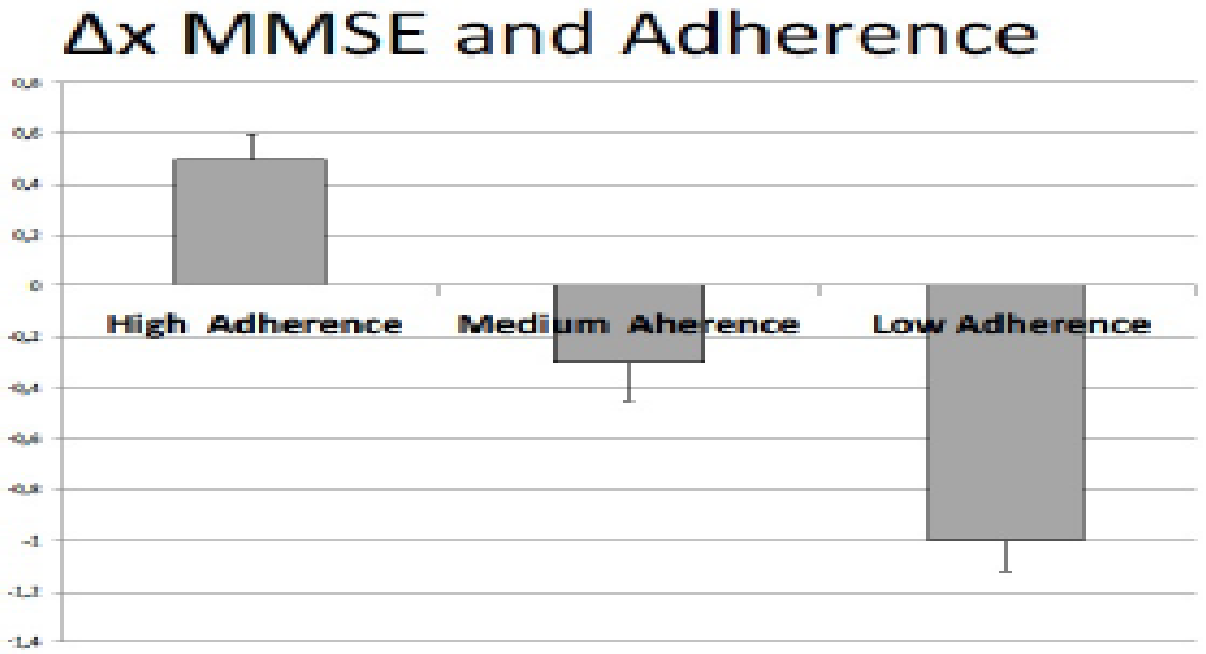
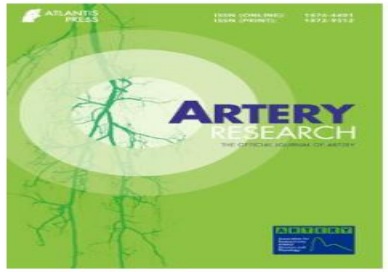


Fig. (1). MMSE and Adherence. MMSE test: Mini Mental State Examination test, Δx: Change in MMSE test before and after the treatment with irbesartan.

Οι υπερτασικοί ασθενείς μετά από χορήγηση ARB, παρουσίασαν μείωση την γνωστικής δυσλειτουργίας , ΑΠ, λευκωματουρίας μετά από παρακολουθηση 16 μηνών.

Πότε είναι η σωστή στιγμή να δώσει οδηγίες ο νεφρολόγος ?



Artery Research

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P2.7: AMELIORATION OF COGNITIVE FUNCTION IN HEMODIALYSIS PATIENTS IN ABSENT OF HYPOTENSIVES EPISODES

Despina Karasavvidou*, Eleni Triantafilidou, Dimitrios Valoukas, Dimitrios Makridis, Sygliti-Errieta Pelidou, Cristos katsinas

Results: Forty-eight patients participated in the study. The average age was 60.8±13.4 years. The mean dialysis vintage was 58±66 months. Patients received adequate renal replacement therapy and the mean urea reduction ratio was 72±6.6. At the onset and at the end of the study, no major hemodynamic changes were detecting (mean systolic/diastolic blood pressure (147.±20/78±11 vs 138±20/77±10 mmHg) according to our aforementioned criteria. Compared to pre- dialysis, an improvement in the test score was revealed after dialysis, paired t-test ($p=0.03$). Mean values of MMSE pre and post was 26.61 ± 3.24 and 28.86± 1.98 respectively (amelioration of 2.25 points).

Conclusions: Our results illustrate the better performance of cognitive function that can be observed after a single dialysis session, in absent of hypotensives episodes. These results may be used as a starting point, in an effort to evaluate the best possible time, pre or post dialysis, to provide medical advice to these patients.

Μπορούμε να προβλέψουμε την ΓΔ?

2018

TABLE 2 Cognitive and arterial parameters

Parameters	CKD 1, n = 44	CKD 2, n = 47	CKD 3, n = 25	CKD 4, n = 35	*P* value
Cognitive					
Mini Mental State Examination (best score 30)	21.8 ± 3.3	20.7 ± 4.8	20.5 ± 4.6	18.7 ± 6.7	0.08
Clock-test (best score 7)	6.8 ± 0.5	6.6 ± 0.9	5.8 ± 1.1	5.3 ± 1.8	<0.001
Instrumental Activity of Daily Living (best score 9)	9.8 ± 2.7	11.7 ± 3.9	14.1 ± 4.2	15.1 ± 5.7	<0.001
Arterial parameters					
Brachial blood pressure					
Systolic BP, (mm Hg)	137.3 ± 9.8	139.4 ± 12.7	142.8 ± 12.8	137.2 ± 18.1	0.65
Diastolic BP, (mm Hg)	84.7 ± 9.8	81.8 ± 10.7	78.6 ± 22.4	77.4 ± 11.3	0.01
Pulse pressure, (mm Hg)	52.5 ± 12.2	57.5 ± 13.8	64.2 ± 22.4	59.8 ± 10.4	0.03
Mean BP, (mm Hg)	102.2 ± 10.3	101.9 ± 9.4	100.5 ± 10.3	97.3 ± 10.4	0.58
Aortic blood pressure					
Systolic BP, (mm Hg)	128.3 ± 14.8	128.1 ± 23.1	131.9 ± 13.3	130.2 ± 17.5	0.53
Pulse pressure, (mm Hg)	41.9 ± 12.8	47.7 ± 21.2	53.1 ± 17.2	53.4 ± 17.1	0.01
Carotid blood pressure					
Systolic BP, (mm Hg)	138.7 ± 16.5	140.6 ± 16.1	139.4 ± 14.2	137.9 ± 15.9	0.89
Pulse pressure, (mm Hg)	53.9 ± 15.9	58.1 ± 16.2	56.6 ± 17.4	60.1 ± 17.6	0.54
cf-PWV[2], (m/s)	6.3 ± 1.5	6.7 ± 1.8	6.1 ± 1.9	6.9 ± 2.3	0.97
Augmentation index (%)	26.8 ± 12.2	24.7 ± 11.2	25.8 ± 12.3	22.3 ± 12.8	0.21

P value represents ANOVA analysis for all groups.
cf-PWV, carotid femoral pulse wave velocity; BP, blood pressure.
[2]The cf-PWV values are adjusted according to new instructions.

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DOI: 10.1111/jch.13350

ORIGINAL PAPER

WILEY

Arterial damage and cognitive decline in chronic kidney disease patients

Despina Karasavvidou MD, PhD[1] | Pierre Boutouyrie MD[2] | Rigas Kalaitzidis MD[3] | Hakim Kettab MD[2] | Kosmas Pappas MD[3] | Dimitrios Stagikas MD[3] | Nikolaos Antonakis PhD[1] | Dimitrios Tsalikakis PhD[2] | Moses Elisaf MD[3] | Stephane Laurent MD[4]

Cognitive and arterial parameters

Parameters	CKD 1, n = 44	CKD 2, n = 47	CKD 3, n = 25	CKD 4, n = 35	*P* value
Cognitive					
Mini Mental State Examination (best score 30)	21.8 ± 3.3	20.7 ± 4.8	20.5 ± 4.6	18.7 ± 6.7	0.08
Clock-test (best score 7)	6.8 ± 0.5	6.6 ± 0.9	5.8 ± 1.1	5.3 ± 1.8	<0.001
Instrumental Activity of Daily Living (best score 9)	9.8 ± 2.7	11.7 ± 3.9	14.1 ± 4.2	15.1 ± 5.7	<0.001
Arterial parameters					
Brachial blood pressure					
Systolic BP, (mm H				2 ± 18.1	0.65
Diastolic BP, (mm				± 11.3	0.01
Pulse pressure, (m				± 10.4	0.03
Mean BP, (mm Hg)				± 10.4	0.58
Aortic blood pressure					

- Οι ασθενείς εμφάνισαν διαφορές στην μνήμη και στην εκτελεστική λειτουργία μεταξύ των σταδίων της ΧΝΝ ,παρόλο την καλή ρύθμιση της ΑΠ

Karasavvidou D et all. J Clin Hypertens (Greenwich). 2018 Sep; 20(9): 1276–1284.

TABLE 3 Multivariate analysis of the study

Parameters	In/Out	R^2 increment%	Beta coeff.	Lower CI	Upper CI	*P* value
Dependent variable MMSE						
Age	In	9.7	−0.102	−0.142	−0.062	<0.001
Education	In	58.1	7.159	6.137	8.354	<0.001
cf-PWV	In	1.0	−0.209	−0.409	−0.010	0.040
Ht	In	1.2	0.139	0.022	0.257	0.020
GFR-MDRD	Out		-	-	-	-
R^2 = 0.700						
(a) Dependent variable MMSE without age and aPP						
Education	In	57.9	8.031	6.891	9.171	<0.001
Ht	In	4.5	0.174	0.037	0.311	0.014
cf-PWV	In	1.5	−0.233	−0.446	−0.019	0.029
GFR-MDRD	In	1.1			9	0.032
R^2 = 0.650						
(b) Dependent variable MMSE without age an						
Education	In	58			3	<0.001
aPP	In	1.1			5	0.026
LDL	In	1.3			3	0.035
Statin	In	1.5			9	0.031
GFR-MDRD	In	4.3			7	0.050

❑ Η PWV φάνηκε να είναι ανεξάρτητος παράγοντας γνωστικής δυσλειτουργίας στην ΧΝΝ

High values of cf-PWV (P = 0.029) and aortic pulse pressure (aPP) (P < 0.026) were independent determinants of cognitive decline assessed by the MMSE

American Heart Association.

Arterial Stiffness and Cognition Among Adults: A Systematic Review and Meta-Analysis of Observational and Longitudinal Studies

Celia Alvarez-Bueno, PhD; Pedro G. Cunha, MD, PhD; Vicente Martinez-Vizcaino, MD, PhD; Diana P. Pozuelo-Carrascosa, PhD; Maria Eugenia Visier-Alfonso, MSc; Estela Jimenez-Lopez, PhD; Ivan Cavero-Redondo, PhD

Global cognition	
Elias et al., 2009 [27]	-0.07 (-0.27, 0.12) 8.42
Fukuhara et al., 2006 [28]	-0.32 (-0.59, -0.04) 6.24
Hanon et al., 2005 [30]	-0.18 (-0.41, 0.04) 7.54
Karasavvidou et al., 2018 [31]	-0.17 (-0.49, 0.15) 5.27
Kim et al., 2009 [32]	-0.82 (-1.03, -0.61) 7.97
Lamballais et al., 2018 [34]	-0.13 (-0.18, -0.07) 12.49
Lee et al., 2014 [35]	-0.22 (-0.61, 0.17) 4.08
Lim et al., 2016 [13]	-0.10 (-0.33, 0.12) 7.54
Muela et al., 2018 [37]	-0.28 (-0.62, 0.05) 4.98
Palta et al., 2019 [40]	-0.11 (-0.18, -0.03) 12.06
Ryu et al., 2017 [43]	-0.49 (-0.85, -0.14) 4.63
Singer et al., 2013 [45]	-0.04 (-0.26, 0.18) 7.68
Zhong et al., 2014 [50]	-0.08 (-0.19, 0.03) 11.10
Subtotal (I-squared = 75.9%) (Q-Cochrane = 49.81, p =	-0.21 (-0.30, -0.11) 100.00

Conclusions

In conclusion, this systematic review and meta-analysis reveals a negative association between arterial stiffness, measured using PWV, and cognition, specifically executive function, memory, and global cognition. This association seems to be independent of sex, age, blood pressure levels, and PWV measurement characteristics. Separate analyses of longitudinal studies support the negative association between arterial stiffness and cognitive function found in cross-sectional studies. Our results accumulate evidence supporting that PWV assessment could be a useful tool to identify individuals at high risk of cognitive decline or early stages of cognitive decline, to implement interventions aimed at slowing the progression to dementia.

Συμπεράσματα

Η γνωσιακή δυσλειτουργία στην ΧΝΝ είναι υποτιμημένη, υποαναγνωρισμένη αλλά αποτελεί συχνό κλινικό πρόβλημα, καθώς 2/3 των ασθενών μας σε αιμοκάθαρση είναι γνωστικά διαταραγμένοι

Ο μηχανισμός του γνωστικού κινδύνου είναι πολυπαραγοντικός και θα πρέπει να εστιάσουμε και στην νευροπροστασία των ασθενών μας

Προγνωστικός δείκτης της γνωσιακής δυσλειτουργίας φαίνεται να αποτελεί η αυξημένη ΑΣ και η παρουσία λευκωματουρίας

Ευχαριστώ

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ΣΑΒΒΑΤΟ 11 ΝΟΕΜΒΡΙΟΥ 2023

09:00-10:20 ΣΤΡΟΓΓΥΛΟ ΤΡΑΠΕΖΙ

ΓΝΩΣΙΑΚΗ ΔΥΣΛΕΙΤΟΥΡΓΙΑ ΚΑΙ ΧΝΝ (Ι)

Προεδρείο: **Α. Αβδελίδου, Γ. Μπαμίχας**

09:00-09:20 Γνωσιακή λειτουργία στη ΧΝΝ: επιδημιολογικά στοιχεία
Α. Ευαγγέλου

09:20-09:40 Έχει νόημα το screening test για τη διάγνωση της γνωσιακής δυσλειτουργίας στη ΧΝΝ και αν ναι ποιο και πότε;
Π. Μαϊόβης

09:40-10:00 Ηλεκτρολυτικές διαταραχές που οδηγούν σε διαταραχές εγκεφάλου και νεφρού
Π. Κρίκη

10:00-10:20 Συζήτηση

10:20-10:50 ΔΙΑΛΕΞΗ

Προεδρείο: **Β. Ρώμα**

Παραδοσιακοί παράγοντες καρδιαγγειακού κινδύνου με επίδραση στην εγκεφαλική λειτουργία στην ΧΝΝ
Ι. Βλάχου

10:50-11:20 ΔΙΑΛΕΞΗ

Προεδρείο: **Ε. Παππάς**

Αναιμία και γνωσιακή δυσλειτουργία στην ΧΝΝ
Γ. Σπανός

11:20-12:00 ΔΙΑΛΕΙΜΜΑ ΚΑΦΕ

12:00-12:30 ΔΙΑΛΕΞΗ

Προεδρείο: **Δ. Καρασαββίδου**

Ενδοαρτηρεκτομή vs stent καρωτίδας και διατήρηση γνωσιακής λειτουργίας
Π. Θεοδωρίδης

ΣΑΒΒΑΤΟ 11 ΝΟΕΜΒΡΙΟΥ 2023

12:30-14:20 ΣΤΡΟΓΓΥΛΟ ΤΡΑΠΕΖΙ

ΓΝΩΣΙΑΚΗ ΔΥΣΛΕΙΤΟΥΡΓΙΑ ΚΑΙ ΧΝΝ (ΙΙ)

Προεδρείο: **Ε. Ντουνούση, Ι. Στεφανίδης**

12:30-12:50 Πρωτεινουρία και γνωσιακή λειτουργία
Α. Μαρτίκα

12:50-13:10 Σακχαρώδης Διαβήτης και γνωσιακή λειτουργία
Κ. Δολιανίτης

13:10-13:30 Γενετικοί βιοδείκτες της γνωσιακής δυσλειτουργίας στη ΧΝΝ
Α. Φούντογλου

13:30-13:50 Γνωσιακή δυσλειτουργία στη ΧΝΝ: πρόληψη και θεραπευτικές στρατηγικές
Δ. Καρασαββίδου

13:50-14:10 Συζήτηση

14:10-15:00 ΕΛΑΦΡΥ ΓΕΥΜΑ

15:00-16:20 ΣΤΡΟΓΓΥΛΟ ΤΡΑΠΕΖΙ

ΓΝΩΣΙΑΚΗ ΛΕΙΤΟΥΡΓΙΑ ΣΤΗΝ ΕΞΩΝΕΦΡΙΚΗ ΚΑΘΑΡΣΗ

Προεδρείο: **Δ. Παπαδοπούλου, Σ. Σπαΐα**

15:00-15:20 Γνωσιακή λειτουργία και τεχνητός νεφρός
Χ. Καβλακούδης

15:20-15:40 Γνωσιακή λειτουργία στην περιτοναϊκή κάθαρση
Α. Ντέμκα

15:40-16:00 Μεταμόσχευση νεφρού. Η επίδραση στον εγκέφαλο
Γ. Μυσερλής

16:00-16:20 Συζήτηση

ΣΑΒΒΑΤΟ 11 ΝΟΕΜΒΡΙΟΥ 2023

16:20-18:40 ΣΤΡΟΓΓΥΛΟ ΤΡΑΠΕΖΙ

ΕΓΚΕΦΑΛΟΣ ΚΑΙ ΥΠΕΡΤΑΣΗ: ΠΑΘΟΦΥΣΙΟΛΟΓΙΚΟΙ ΜΗΧΑΝΙΣΜΟΙ

Προεδρείο: **Ρ. Καλαϊτζίδης, Σ. Λαμπρόπουλος**

16:20-16:40 Ο ρόλος της υπέρτασης στην γνωσιακή λειτουργία
Ρ. Καλαϊτζίδης

16:40-17:00 Αρτηριακή υπέρταση και υποκλινικές βλάβες του εγκεφάλου. Παθοφυσιολογικοί μηχανισμοί
Ο. Μπαλάφα

17:00-17:20 Συσχέτιση των επιπέδων αρτηριακής πίεσης και της γνωσιακής δυσλειτουργίας
Ι. Γριβέας

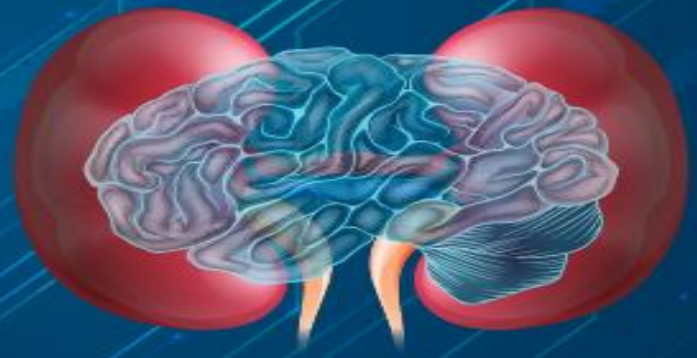
17:20-17:40 Συζήτηση

ΟΡΓΑΝΩΣΗ

ΝΕΦΡΟΛΟΓΙΚΟ ΤΜΗΜΑ "Χ. ΚΑΤΣΙΝΑΣ"
ΓΕΝΙΚΟ ΝΟΣΟΚΟΜΕΙΟ ΠΤΟΛΕΜΑΪΔΑΣ "ΜΠΟΔΟΣΑΚΕΙΟ"

ΕΠΙΣΤΗΜΟΝΙΚΗ ΕΚΔΗΛΩΣΗ

Εγκέφαλος και Νεφρός



10-11 Νοεμβρίου 2023

Pantelidis Hotel, Πτολεμαΐδα

ΥΠΟ ΤΗΝ ΑΙΓΙΔΑ

ΓΡΑΜΜΑΤΕΙΑ

C.T.M.International S.A.

ΕΠΙΣΤΗΜΟΝΙΚΗ ΕΚΔΗΛΩΣΗ

Εγκέφαλος και Νεφρός

10-11 Νοεμβρίου 2023

Pantelidis Hotel, Πιλαμαίδα

ΕΠΙΣΤΗΜΟΝΙΚΗ ΕΚΔΗΛΩΣΗ
Εγκέφαλος και Νεφρός
10-11 Νοεμβρίου 2023
Pantelidis Hotel, Πιλαμαίδα

ΕΠΙΣΤΗΜΟΝΙΚΟ ΠΡΟΓΡΑΜΜΑ

ΠΑΡΑΣΚΕΥΗ 10 ΝΟΕΜΒΡΙΟΥ 2023

14:00-14:30 Προσέλευση - Εγγραφές

14:30-14:40 Καλωσόρισμα των συνέδρων
Δ. Καρασαββίδου

14:40-16:00 **ΣΤΡΟΓΓΥΛΟ ΤΡΑΠΕΖΙ**
ΝΕΟΤΕΡΕΣ ΕΞΕΛΙΞΕΙΣ ΣΤΗ ΧΡΟΝΙΑ ΝΕΦΡΙΚΗ ΝΟΣΟ
Προεδρείο: **Δ. Πετράς, Κ. Σιαμόπουλος**

14:40-15:00 Χρόνια νεφρική νόσος και νεότερες φαρμακευτικές παρεμβάσεις
Α. Βαγγοπούλου

15:00-15:20 Εξωνεφρική κάθαρση και τεχνητή νοημοσύνη
Α. Φούντογλου

15:20-15:40 Η επίδραση της σταδιακής αιμοκάθαρσης (incremental dialysis) στον εγκέφαλο
Δ. Μακρίδης

15:40-16:00 Συζήτηση

16:00-16:30 ΔΙΑΛΕΙΜΜΑ ΚΑΦΕ

16:30-17:45 **ΣΤΡΟΓΓΥΛΟ ΤΡΑΠΕΖΙ**
ΕΓΚΕΦΑΛΟΣ ΚΑΙ ΝΕΦΡΟΣ: ΕΙΣΑΓΩΓΙΚΑ ΣΤΟΙΧΕΙΑ
Προεδρείο: **Α. Ανδρίκος, Ε. Παπαχρήστου**

16:30-16:50 Γνωσιακή λειτουργία και τρόποι μέτρησης
Θ. Παπατόλιος

16:50-17:10 Μορφές γνωσιακής δυσλειτουργίας, συχνότητα και επιπολασμός
Χ. Ζιάμος

17:10-17:30 Ψυχιατρικές διαταραχές στην ΧΝΝ
Τ. Τριανταφυλλίδης

17:30-17:45 Συζήτηση

ΠΑΡΑΣΚΕΥΗ 10 ΝΟΕΜΒΡΙΟΥ 2023

17:45-18:15 **ΔΟΡΥΦΟΡΙΚΗ ΔΙΑΛΕΞΗ** astellas

ΟΙ HIF-PHIs ΣΕ ΑΣΘΕΝΕΙΣ ΜΕ ΑΝΑΙΜΙΑ ΣΤΗ ΧΝΝ
Προεδρείο: **Ρ. Καλαϊτζίδης**

Γιατί έχουν τόσο ενδιαφέρον οι HIF-PHIs
Ρ. Καλαϊτζίδης

Ο πρώτος αναστολέας HIF- PHI Από το Κλινικό πρόγραμμα στην Κλινική πράξη
Γ. Σπανός

18:15-19:15 **PLENARY LECTURE**
Chairs: **D. Petras, E. Papachristou**

Gognitive dysfunction in chronic kidney disease
G. Capasso

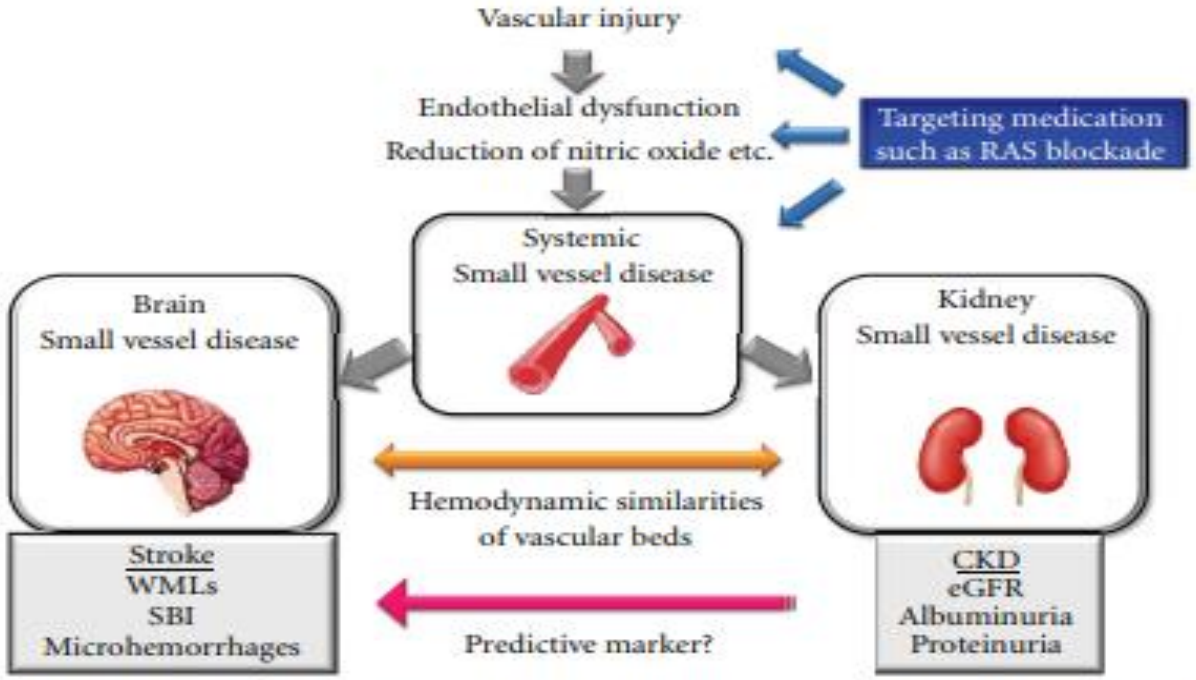


FIGURE 1: Schematic representation of cerebrorenal connection. RAS: renin-angiotensin system, CKD: chronic kidney disease, eGFR: estimated glomerular filtration rate, WMLs: white matter lesions, and SBI: silent brain infarction.

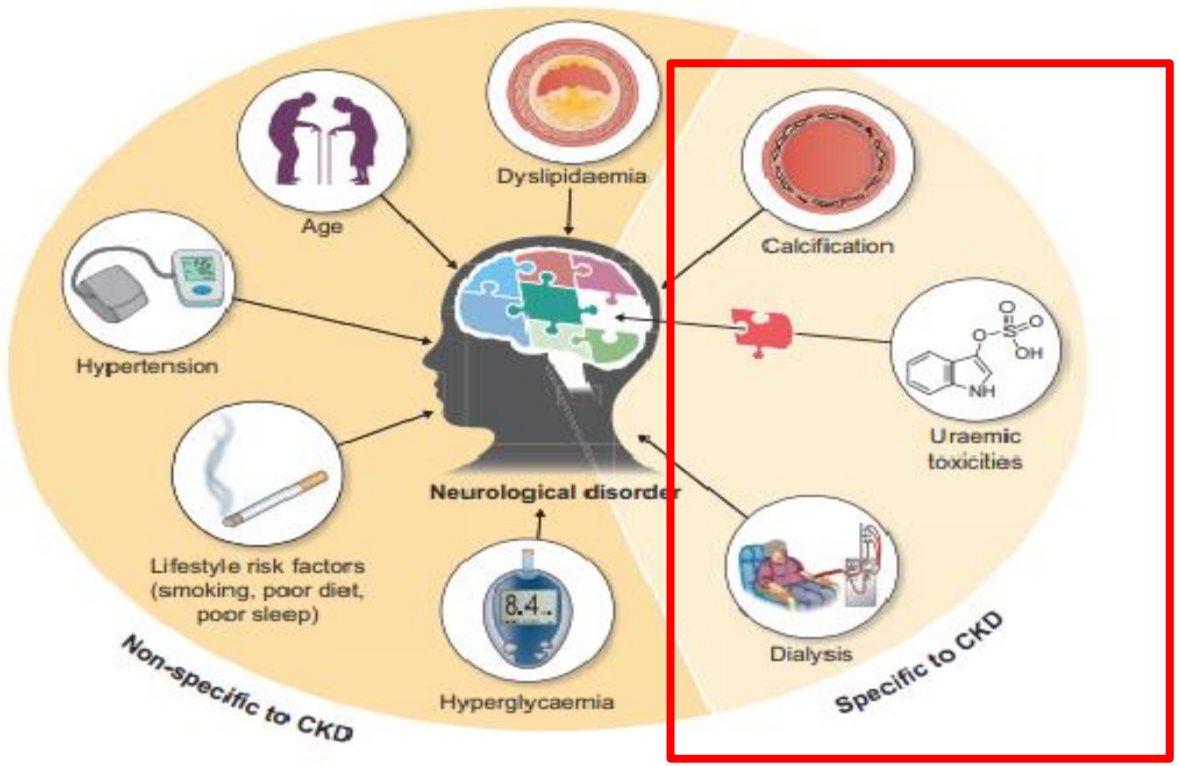
Η απώλεια της αγγειακής αυτορρύθμισης έχει αποτέλεσμα τις αιμοδυναμικής αλλαγής στον νεφρό (πρωτεινουρία) και στον εγκέφαλο (νόσος των μικρών αγγείων, μικροέμφρακτα και γνωστική δυσλειτουργία)

Πως ο νεφρός επηρεάζει τον εγκέφαλο?

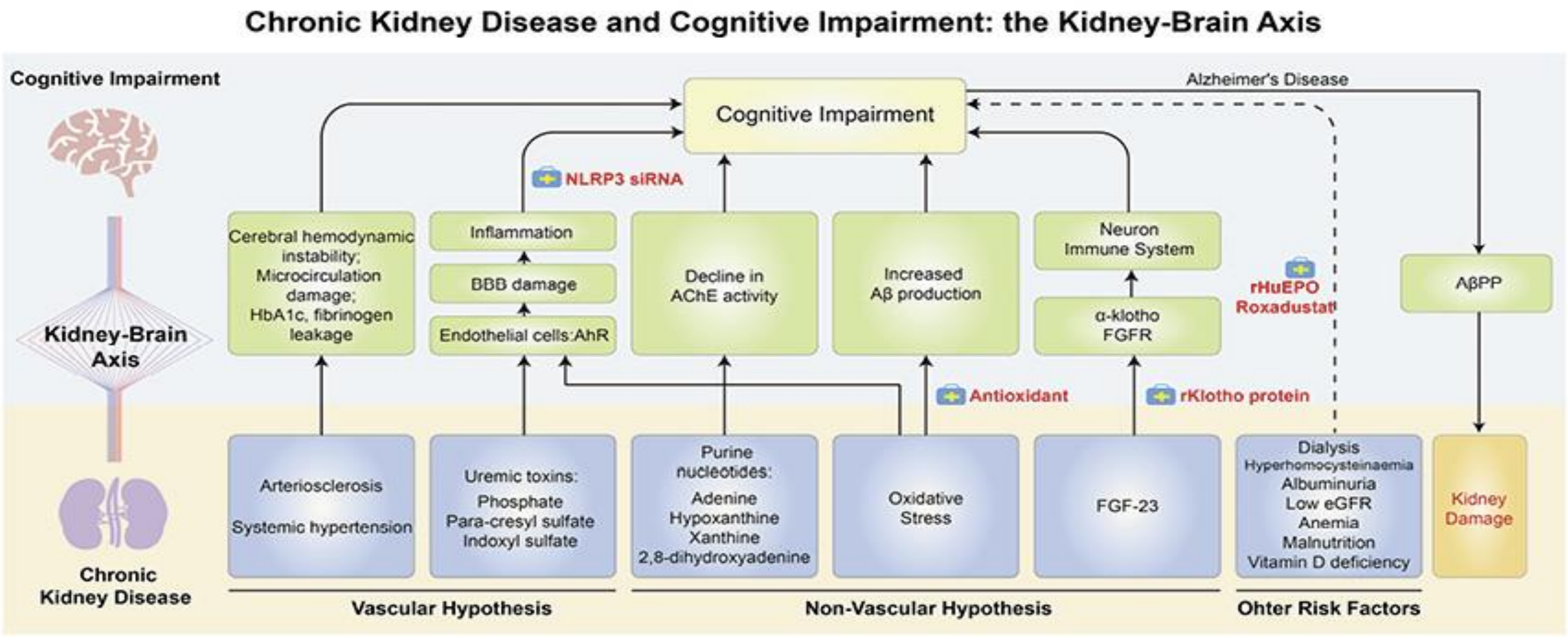
Nephrol Dial Transplant (2021) 37: ii33–i44
doi: 10.1093/ndt/gfab223

Chronic kidney disease and neurological disorders: are uraemic toxins the missing piece of the puzzle?

Sophie Liabeuf [1,2], Marion Pepin[3,4], Casper F.M. Franssen[5], Davide Viggiano[6], Sol Carriazo [7], Ron T. Gansevoort[5], Loreto Gesualdo[8], Gaye Hafez [9], Jolanta Malyszko[10], Christopher Mayer[11], Dorothea Nitsch[12], Alberto Ortiz [7], Vesna Pešić[13], Andrzej Wiecek[14] and Ziad A. Massy[3,15]; the CONNECT Action (Cognitive Decline in Nephro-Neurology European Cooperative Target)



IGURE 1: The complicated puzzle of risk factors associated with neurological disorders in patients with CKD. Along with traditional ırdiovascular risk factors (such as diabetes, hypertension and dyslipidaemia), non-traditional risk factors related to kidney damage (such s uraemic toxicities) may predispose patients with CKD to neurological disorders.



Οι ασθενείς με ΧΝΝ μπορούν να οδηγηθούν σε γνωστική δυσλειτουργία

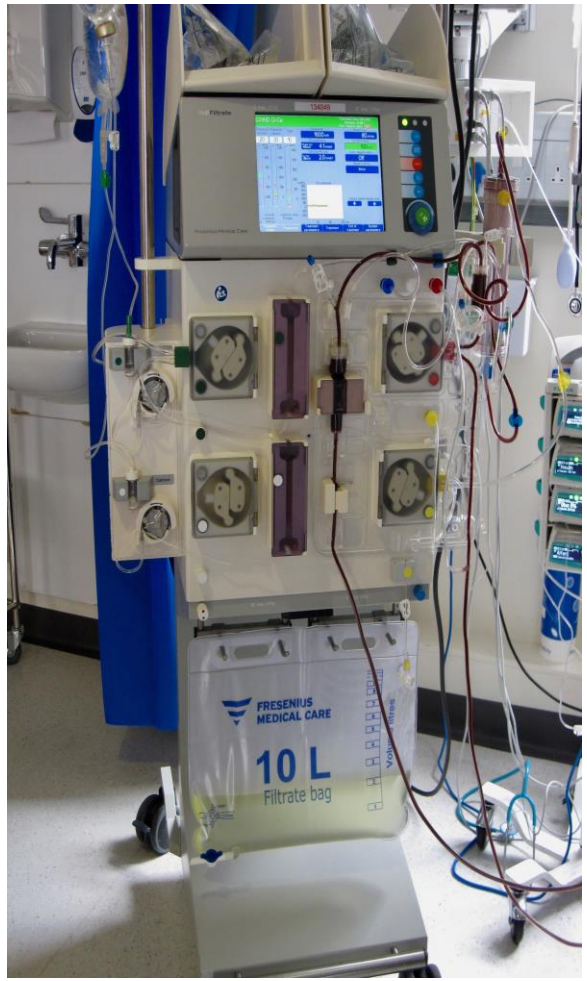
1.Αγγειακή υπόθεση (συστηματική ΑΥ, αθηρωμάτωση και ουραιμικές τοξίνες)

2.Μη αγγειακή υπόθεση (νουκελοτίδια πουρίνης, οξειδωτικό στρες,FG23)

3.Παράγοντες στην αιμοκάθαρση, αναιμία, λευκωματουρία και έλλειψη VitD

ΜΕΛΛΟΝΤΙΚΕΣ ΕΡΓΑΣΙΕΣ

ΕΓΚΕΦΑΛΙΚΗ ΛΕΙΤΟΥΡΓΙΑ ΚΑΙ ΑΙΜΟΚΑΘΑΡΣΗ



Επαναλαμβανόμενες αιμοκαθάρσεις προκαλούν ελάττωση της εγκεφαλικής αιμάτωσης

Ισχαιμική εγκεφαλική βλάβη

Προοδευτική γνωστική εξασθένηση

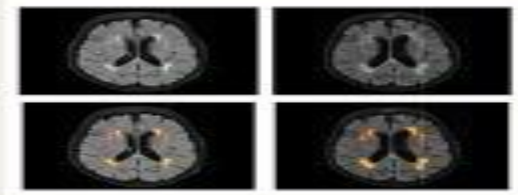
ΣΥΣΧΕΤΙΣΗ ΤΗΣ ΕΓΚΕΦΑΛΙΚΗΣ ΡΟΗΣ ΑΙΜΑΤΟΣ ΚΑΙ ΤΗΣ ΓΝΩΣΤΙΚΗΣ ΛΕΙΤΟΥΡΓΙΑΣ ΣΕ ΑΙΜΟΚΑΘΑΡΣΗ

Investigating the relationship between cerebral blood flow and cognitive function in hemodialysis patients

METHODS

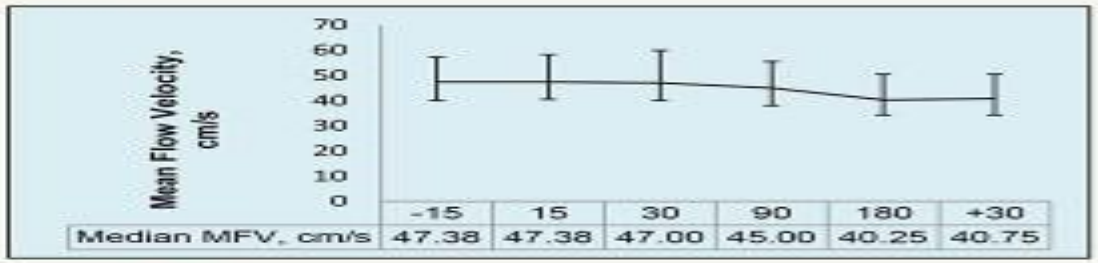
97 Hemodialysis patients

Prospective cohort study with 12 month follow-up
Correlating transcranial Doppler mean flow velocity (MFV), cognitive function during & out-with hemodialysis (HD) and cerebral MRI in 40 participants.



RESULTS

HD induces a transient decline in cerebral blood flow, correlating with intradialytic & longer-term cognitive dysfunction & associates with progressive cerebral white matter hyper-intensities.



	-15	15	30	90	180	+30
Median MFV, cm/s	47.38	47.38	47.00	45.00	40.25	40.75

CONCLUSION Hemodialysis is capable of inducing transient cerebral stunning, offering one mechanism of cerebral injury in ESRD

doi: 10.1681/ASN.2018050462

JASN
JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY

- Οι ασθενείς που υποβάλλονται σε αιμοκάθαρση παρουσιάζουν παροδική μείωση της ροής αίματος εγκεφάλου με προοδευτική εγκατάσταση γνωστικής δυσλειτουργίας.
- Η γνωστική λειτουργία βελτιώθηκε μετά τη μεταμόσχευση.

American Heart Association.

Arterial Stiffness and Cognition Among Adults: A Systematic Review and Meta-Analysis of Observational and Longitudinal Studies

Celia Alvarez-Bueno, PhD; Pedro G. Cunha, MD, PhD; Vicente Martinez-Vizcaino, MD, PhD; Diana P. Pozuelo-Carrascosa, PhD; Maria Eugenia Visier-Alfonso, MSc; Estela Jimenez-Lopez, PhD; Ivan Cavero-Redondo, PhD

Global cognition	
Elias et al., 2009 [27]	-0.07 (-0.27, 0.12)
Fukuhara et al., 2006 [28]	-0.32 (-0.59, -0.04)
Hanon et al., 2005 [30]	-0.18 (-0.41, 0.04)
Karasavvidou et al., 2018 [31]	-0.17 (-0.49, 0.15)
Kim et al., 2009 [32]	-0.82 (-1.03, -0.61)
Lamballais et al., 2018 [34]	-0.13 (-0.18, -0.07)
Lee et al., 2014 [35]	-0.22 (-0.61, 0.17)
Lim et al., 2016 [13]	-0.10 (-0.33, 0.12)
Muela et al., 2018 [37]	-0.28 (-0.62, 0.05)
Palta et al., 2019 [40]	-0.11 (-0.18, -0.03)
Ryu et al., 2017 [43]	-0.49 (-0.85, -0.14)
Singer et al., 2013 [45]	-0.04 (-0.26, 0.18)
Zhong et al., 2014 [50]	-0.08 (-0.19, 0.03)
Subtotal (I-squared = 75.9%) (Q-Cochrane = 49.81, p =	-0.21 (-0.30, -0.11)

Conclusions

In conclusion, this systematic review and meta-analysis reveals a negative association between arterial stiffness, measured using PWV, and cognition, specifically executive function, memory, and global cognition. This association seems to be independent of sex, age, blood pressure levels, and PWV measurement characteristics. Separate analyses of longitudinal studies support the negative association between arterial stiffness and cognitive function found in cross-sectional studies. Our results accumulate evidence supporting that PWV assessment could be a useful tool to identify individuals at high risk of cognitive decline or early stages of cognitive decline, to implement interventions aimed at slowing the progression to dementia.

8.42	
6.24	
7.54	
5.27	
7.97	
12.49	
4.08	
7.54	
4.98	
12.06	
4.63	
7.68	
11.10	
100.00	