Conclusions. In all cases, the treatment of patients with hypertension must be strictly individually, taking into account the age, the timekeeping, functioning of vital organs etc. Control of antihypertensive therapy included blood pressure measurement, daily monitoring of blood pressure, heart rate, ECG, ICP, CPP, pulse oximetry. Useful lipid profile, clinical examination, patient's visiting the club to communicate with the therapist — a psychologist, trained emergency self-help in the cases of hypertensive crisis.

STRONG CORRELATION OF AGE P16 PROTEIN EXPRESSION DYNAMICS WITH INTENSITY OF BETA AMYLOID AB42 EXPRESSION

N. A. Kraskovskaya*,, V. A. Zuev**, N. S. Linkova*,****

**Peter the Great Saint-Petersburg Polytechnic University, St Petersburg, 195251, Russia*
***St. Petersburg Institute of Bioregulation and Gerontology, St Petersburg, 197110, Russia*

Introduction. Neurodegeneration and cell death in Alzheimer's disease might be associated with aberrant proliferative mechanisms and activation of cell-cycle related events which correlates with the ectopic expression of cell cycle markers. The p16INK4a tumor suppressor is well-known biomarker of senescence. It has been shown to markedly increase with molecular aging in most human tissues. Pathological accumulation of amyloid-beta peptide (Aβ) is considered as a pathological hallmark of Alzheimer's disease and widely used as a biomarker of AD. It has been reported that elevated expression of the p16INK4a in Alzheimer's disease is closely associated with neurofibrillary degeneration while its relationship with amiloid depositions in humans remain elusive.

Aim. To examine the expression level of p16INK4a protein and beta amyloid protein Aβ42 in case of AD.

Subjects and Methods. AD-associated changes in the expression of the p16INK4a and Aβ42 were investigated by immunocytochemistry in the post-mortem human hippocampus of patients with AD and non-Alzheimer age-matched controls. Samples were divided into 3 groups according to patient's age: mature (n = 25), elderly (n = 23) and old (n = 17). The AD cases were classified as ''mild'' AD. The sections were incubated with p16 (1:75, Dako) and Aβ42 (1:125, Novocastra) primary antibodies and thereafter processed for 2 h with the second biotinylated antibody (anti-mouse IgG, Dako). Reactions were visualized with the ABC-complex and 3. 3-diaminobenzidine (Dako). Statistical significance was determined by the Student's *t* test, p values under 0.05 were considered statistically significant.

Results. Levels of the established AD biomarker Aβ42 were markedly increased in AD patients (P = 0.01). Increases in both p16INK4a (P = 0.01) and Aβ42 (P = 0.01) were age-dependent. Increasing levels of the senescence-associated biomarker p16INK4a positively correlated with AD biomarker Aβ42 (P = 0.01) in all age groups. The correlation coefficient between p16INK4a and Aβ42 was 1, suggesting very strong correlation.

Conclusion. We have explored the relationships between p16INK4a and Aβ42. The obtained results demonstrate that increase in p16 expression level strongly correlates with the intensity of expression of the Aβ42 in case of AD.

RELATIONSHIP ETIOLOGY AND CLINICAL MANIFESTATIONS OF CHRONIC KIDNEY DISEASE WITH AGING

M. A. Orynchak, O. S. Chovganyuk, I. O. Gaman, I. I. Vakalyuk, M. M. Vasylechko, N. R. Artemenko

SHEE "Ivano-Frankivsk National Medical University", Ivano-Frankivsk, Ukraine

Background. Chronic Kidney Disease (CKD) is observed in 5–10 % population worldwide. The rate of patients with CKD increasing is 5 times higher than the natural population growth. CKD is a disease that lasts more than 3 months.

The goal — to assess whether the etiology factors for CKD influence on its clinical manifestations and answer in form: yes/no.

Materials and methods. 99 patients with CKD history (male — 33, female — 66), age 52.84 ± 20.68 years were examined. General clinical examination along with complete blood count, urinalysis, determination of

microalbuminuria (MAU), biochemical blood tests (creatinine, urea), calculated GFR by MDRD formula, ultrasound of the kidneys were applied. The control group consisted of 20 healthy people.

Results. Pyelonephritis was observed in 32 (32.32 %) patients, glomerulonephritis — in 29 (29.30 %) patients, diabetic nephropathy — in 14 (14.14 %) patients, hypertensive nephropathy — in 18 (18.18 %) patients and abnormalities in kidney — in 6 (6.06 %) cases. Stage I CKD was not diagnosed in any patient, while stage II was diagnosed in 26 (26.27 %) patients, stage III — in 32 (32.32 %), stage IV — in 18 (18.18 %) and stage V — in 23 (23.23 %) cases. Three main syndromes: hypertension (AH), edema, and urinary were present in all patients. The most CKD cases were determined by the presence of MAU/proteinuria and AH, particularly by diabetes mellitus (DM) in the background and in the patients with family history. 55 (69.6 %) patients exhibited mild (56.4 %), moderate (32.7 %) and severe (10.9 %) anemia. Patients without anemia had plasma urea and creatinine levels 2-3 times higher ($p < 0.05$) and patients with anemia had these levels 3–4 times higher compared to normal rates ($p < 0.05$). Structural changes in kidney parenchyma or cup-pelvic complex in all patients were visualized using ultrasound. The dependence of the clinical manifestations from etiology: **yes,** because the start of CKD was different. Anamnesis of pyelonephritis was associated with hyperthermia, clinical fever with night chills and often dysuria in the middle aged patients — 16 (39.02 %) cases; glomerulonephritis signs such as AH, edema, and hematuria were frequent in the middle aged patients — 9 (34.62 %) cases; diabetic nephropathy was characterized by a long history of DM, special treatment of AH, and retinopathy in the elderly — 14 (43.75 %) cases; for hypertensive nephropathy the AH duration was over 10–15 years without changes in urine analysis, but later under high blood pressure the nephrons in kidneys were damaged and kidney failure progressed rapidly in the middle aged patients and elderly — 9 (21.95 %) and 6 (18.75 %) cases in accordance; the kidney abnormalities may be detected by X-ray or ultrasound and which lead to rapid or progressive decline of kidney function. The dependence of the clinical manifestations from etiology: **no,** because CKD is usually diagnosed at late stages (III–IV–V); stages I–II have latent flow; CKD appears randomly in the presence of AH, edema or changes in urine: MAU/proteinuria, hematuria, pyuria, hyposthenuria often; all patients with CKD VD stage need replacement treatment by hemodialyses or transplantation of kidney regardless of CKD etiology.

Conclusion. While the CKD concept reminds us that CKD is influenced by multiple factors at its origin, the importance of the main syndromes criteria to determine the CKD risk within a population is limited. For early CKD detection markers of kidney damage such as presence of high blood pressure (over 140/90 mmHg) and GFR < 60 mL/min and changes in urinalysis (MAU) lasting more than 3 months should be identified or markers of kidney damage should be identified by ultrasound and/or X-ray as soon as possible.

SARCOPENIA IN UKRAINIAN OLDER WOMEN

V. Povoroznyuk, N. Dzerovych

D. F. Chebotarev Institute of Gerontology NAMS Ukraine, Kyiv, Ukraine

Introduction. Sarcopenia has been defined as an age-related reduction in muscle mass, strength and performance. Muscle mass peaks by fourth decade and thereafter decreases at the rate of 1 % after the age of 50 years. Prevalence of sarcopenia varies widely (5–70 %) according to age, sex, ethnicity and the criteria used for its definition [Cruz-Jentoft A. J. et al., 2010; Marwaha R. et al., 2014].

Aim. Evaluation of sarcopenia frecuency in the healthy Ukrainian women.

Subjects and Methods. 390 women aged 20–87 years (mean age — 57.50 ± 15.99 years) were examined. All subjects were free of systemic disorders and obesity, and were not taking medications known to affect the skeletal and muscle metabolism. The lean and fat masses were measured by the DXA method (Prodigy, GEHC Lunar, Madison, WI, USA). Appendicular skeletal mass (ASM) was measured at all the four limbs with DXA. We have also calculated the appendicular skeletal mass index (ASMI) according to the formula: ASM/height (kg/m^2). Low muscle mass values conform to the following definitions: European guidelines (ASMI < 5.5 kg/m^2) (EWGSOP, 2010), less than 20 % of sex-specific normal population and two SD below the mean of the young adult Ukrainian females (20–39 yrs). We also assessed handgrip strength and measured gait speed. The sarcopenia was determined using EWGSOP-suggested algorithm. “Statistika 6.0” © StatSoft, Inc. was used for data processing purposes. Significance was set at $p < 0.05$.

Results. The ASMI values corresponding to a cutoff of low muscle mass by the definitions used were as follows: < 5.5 kg/m^2 (European guidelines), < 5.7 kg/m^2 (< 20^{th} percentile of sex specific population), < 4.8 kg/m^2 (two SD below the mean of young Ukrainian females aged 20–39 yrs). The frequency of low muscle mass in women aged 65 yrs and older based on the above three criteria was 12 %, 16 % and 1.7 %, respectively. The frequency of sarcopenia increased with age: in women 50–59 yrs — 5.1 %, 60–69 yrs — 3.7 %, 70–79 yrs — 18.4 %, 80–80 yrs — 30.8 %. The mean frequency of sarcopenia in women aged 65 yrs and older was 21.3 %.