letter (FAS) and semantic (fruits, animals) verbal fluency tests, Digit Span Test, Stroop Color-Word Interference Test, Boston Naming Test, Rule shift cards of BADS, DEX and VOSP. The genetic study consisted of three SNPs in PICALM (rs3851179), CLU (rs11136000) and CR1 (rs3818361) gene. Genotyping was performed through Taqman ® 5 ' nuclease Assays. **Results:** Several associations were found between these genes and cognitive tasks. In the PICALM analysis, those carrying the GG combination (vs AA+AG) performed worse on FAS-F (GG: 7.6±4.6; AA+AG: 9.3±4; p=0.027) and FAS-A (GG: 7 ±4.5; AA+AG: 8.6±4.3; p=0.05). For the CLU polymorphism, patients who carried the protective TT genotype (vs CC+CT) showed a better performance on TMT-B time (TT: 168.6±91; CC+CT: 244.6±112.7; p=0.023), on FAS-A (TT: 11±5.1; CC+CT: 7.5±4.3; p=0.012) and on backwards digit span (TT: 5.3±1.8; CC+CT: 3.9±1.3; p=0.021). Finally, for the CR1 gene, MCI subjects who carried the TT genotype (VS CC+CT) got lower scores in the semantic fluency task, both in fruits (TT: 7±4.2; CC+CT: 10.4±3.1; p=0.029) and animals (TT: 11.5±0.6; CC+CT: 13.1±4.3; p=0.023) sections. **Conclusions:** There is a gene-cognitive endophenotype association between PICALM, CLU and CR1 genes in patients with MCI, being PICAL and CLU associated with prefrontal dysfunction (executive functioning) and CR1 with frontotemporal lobe dysfunction (executive functioning and semantic memory).

P4-073 PREVALENCE OF PRECLINICAL ALZHEIMER'S DISEASE AMONG YOUNG ADULTS: THE GIPUZKOA ALZHEIMER PROJECT STUDY

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Background: Most studies of preclinical Alzheimer's disease (AD) have focused on subjects older than 65-70 years. Since AD pathology starts 10-15 years before symptom onset, positive biomarkers of amyloid deposition suggesting pre-clinical AD might be detected at younger ages. This study aims to investigate the prevalence of decreased CSF levels of beta-amyloid in CSF suggestive of pre-clinical AD in asymptomatic subjects between 45 and 65 years of age. **Methods:** The GAP study is a longitudinal study that focuses on the pre-clinical and prodromal stages of AD investigating cognition, biomarkers, structural/functional neuroimaging, cardiovascular factors, nutrition and lifestyle habits. The study includes a total of 396 non-demented volunteers between 45 and 75 years of age recruited from the community (age= 58.0±6.3 yr; 56.1% female; education= 13.8±3.7 yr; MMSE= 28.5±1.4; 49.2% have parental or sibling history of AD). Baseline visit was completed in December 2012. Informed consent for CSF donation was obtained from 248 participants (62.6%). Aβ 42 levels in CSF were measured by ELISA (Innogenetics®). Pre-clinical AD was defined as Aβ 42 CSF levels lower than 580 pg/mL. Subjects receiving a diagnosis of MCI were excluded from this analysis. **Results:** APOE genotype distribution was, APOE3/2: 7.5%; APOE3/3: 66.2%; APOE3/4: 24.5%; APOE4/4: 1.7%. LP procedures were safe and well tolerated. Mean Aβ 42 CSF levels were 817.9±178.9 pg/mL. APOE 4 carriers showed significantly lower Aβ 42 CSF levels (737.3±198.9 vs. 843.4±165.7; p<0.01). Aβ 42 CSF levels correlated with memory performance in the FCSRT (r=0.25; p<0.01). Prevalence of pre-clinical AD among subjects older or younger than 65 was 30.4% and 8.3% respectively (p<0.01)(total prevalence: 12.6%). The proportion of subjects with pre-clinical AD was significantly higher among APOE4 carriers (8.7% vs 23.1%; p<0.05) and tended to be higher among subjects with family history of AD in a direct relative (8.3% vs. 16.9%; p=0.1). **Conclusions:** Prevalence of pre-clinical AD is high among subjects between 45 and 65 years of age. Prevalence is increased among APOE4 carriers and shows a tendency to be higher in subjects with family history of AD in a direct relative. These age group subjects should be considered for recruitment in prevention trials with anti-amyloid strategies.

P4-074 NON-PARANEOPLASTIC LIMBIC ENCEPHALITIS ASSOCIATED WITH GLUTAMIC ACID DECARBOXYLASE ANTIBODY

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Background: Although limbic encephalitis (LE) has been associated with variety of autoantibodies, limbic encephalitis with glutamic acid decarboxylase antibodies (GAD-Ab) is rare and presents with treatment-resistant seizures or behavioral disturbances. Here we report a patient presenting with somnolence, psychiatric findings, non-convulsive status epilepticus and elevated serum GAD-Ab levels. **Methods:** A 63-year-old woman was admitted with a 5-month history of slowly progressing social withdrawal, recurrent episodes of purposeless crying, insomnia, visual hallucinations and delusions. In the last few days, she had also developed drowsiness, agitation and incoherent talking. The EEG findings of generalized and rhythmical spike-wave activity over the posterior regions of both hemispheres led to the diagnosis of non-convulsive status epilepticus together with the clinical deterioration in responsiveness. **Results:** Investigation for a broad panel of autoantibodies only revealed increased serum GAD-Ab levels. Following intravenous high dose methylprednisolone and intravenous immunoglobulin treatments, her neurological symptoms improved, EEG findings disappeared and GAD-Ab levels were significantly decreased. **Conclusions:** Detection of the spesific autoantibody in LE is important in the prognosis of the patients and GAD-Ab should be added to the list of anti-neuronal antibodies associated with limbic encephalitis.

P4-075 DEVELOPMENT AND VALIDATION OF A BRIEF DEMENTIA RISK ASSESSMENT TOOL FOR USE IN PRIMARY CARE

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Background: Undiagnosed dementia is common in older adults, and detection of 'any cognitive impairment' is now federally mandated as part of the Medicare Annual Wellness Visit. Yet screening all older adults for cognitive impairment may result in unacceptably high false positive rates, particularly in younger Medicarepatients. The objective of our study was to develop and validate a brief Dementia Risk Assessment (DRA) tool for use in primary care to enable clinicians to identify high-risk patients who should be targeted for cognitive screening. **Methods:** The DRA was developed and validated using data from four existing cohort studies: the Cardiovascular Health Study (CHS), Framingham Heart Study (FHS), Health and Retirement Study (HRS) and Sacramento Area Latino Study on Aging (SALSA). These studies were selected because they included data on incident dementia anda broad palette of potential risk markers and together provided representation ofindividuals from diverse geographic and race/ethnic backgrounds. We first calculated 6-year dementia risk as a function of age and set ≥80 years as the age at which cognitive screening should be considered based on age alone. In participants age 65-79 years, we then performed Cox proportional hazards analyses and used an iterative process to identify a common set of dementia risk

predictors. Meta-analysis was performed to develop a DRA point score based on the predictors retained in the final model. **Results:** The final DRA tool included age (1 point/year), <12 years education (9 points), stroke (6 points), diabetes mellitus (3 points), body mass index <18.5 kg/m 2 (8 points), requiring assistance with money/medications (10 points), and evidence of depression (anti-depressant use/self-reporting "everything an effort" ≥3 days/week, 6 points). Accuracy based on Harrell's c statistic (95% confidence interval) was CHS, 0.68 (0.65, 0.72); FHS, 0.77 (0.73, 0.82); HRS, 0.76 (0.74, 0.77); and SALSA, 0.78 (0.72, 0.83). Across all 4 studies, a point-value of ≥22 identified a group of 65-79 year-olds whose 6-year dementia risk was comparable to 80-84 year-olds. **Conclusions:** The DRA is a simple tool that can be used in primary care to identify older patients with an increased risk of developing dementia who should be considered for cognitive screening.

P4-076 ASSOCIATION OF LONG-TERM HEAVY ALUMINUM INTAKE AND INVOLUNTARY MOVEMENTS WITH COGNITIVE DECLINE

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Background: Long-term exposure to some specific metals such as manganese, copper, mercury, lead, iron, zinc, aluminum have been reported to be a risk factor for Parkinson disease. Aluminum also significantly impaired the gap junctional intercellular communication in cultured astrocytes. These astrocyte functional changes may be responsible for neurodegenerative diseases including Alzheimer disease. Our study aim is to explore the possible association between long-term heavy aluminum intake and involuntary movements with cognitive decline presenting typical case. **Methods:** We evaluated a 72-year old woman who was referred to us with the repetitive, involuntary buccolingual masticating movements accompanying tongue protrusion, lip-smacking, chewing, lateral movement of jaw and sound of 'um'. She underwent brain MRI, MRA, FDG-PET, laboratory blood/urine tests, neuropsychological tests on admission. We also investigated previous history of medication use. **Results:** We did not find any specific findings in Brain MRI, MRA, FDG-PET and laboratory tests. However, she showed impaired cognitive function of Mini-Mental status Examination (MMSE; age, gender, education adjusted z score = -2.48), Word List Memory Test (z score = -2.02), Word List Recognition (z score = -2.93) and Stroop Color Word test (z score = -1.69). On history taking, we found that she have been taking 'aluminum phosphate colloidal (12.3g/20g)', 3 or 4 times per a day, since 40 years ago. Then we prohibited her taking aluminum colloidal. On admission day 17, after 13 days from aluminum intake cessation, involuntary movements improved. And she had also cognitive improvement of MMSE (z = -1.51), Word List Memory Test (z score = -0.16), Word List Recognition (z score = 0.81) and Stroop Color Word test (z score = -1.02). **Conclusions:** This case suggests the possible association between long-term heavy aluminum intake and involuntary movements with cognitive impairments. This study would help further study design to explore the pathophysiology of aluminum in neurodegenerative disease.

P4-077 MEMANTINE-INDUCED RAPID DETERIORATION OF VISION: A CASE REPORT

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Background: A 82-year-old woman was brought to the ER in January 2013 with rapid deterioration ofvision after taking the liquid form of Memantine. **Methods:** The history of the patient showed that she admitted to the same hospital one day before with the symptoms of Alzheimer. Her relatives' questioning revealed that her memory loss slowly progressed and she had two other diagnoses, namely congestive heart failure and hypertension. She was concurrently taking Isosorbit mononitrat 50mg/day, Bisoprolol fumarat 10 mg/day, and Ramipril 5mg/day. Her neurological exam showed that she was confused; however, she was ambulatory and not showing any neurological deficits. Her mini mental score was 7. **Results:** Her daughter-in-law was living with the patient and she was suspecting the diagnosis of Alzheimer because patient's husband was lost for the same diagnosis. Also she said the patient was stubborn for taking the medications. Eventually, the liquid form of memantine was prescribed and a gradual increasing dose was planned, starting 1 (0,5mg) drop each night (in order to spacing out the medications) for the first week. That night the patient was admitted to the ER with a complaining of rapid deterioration ofvision after five minutes taking the first dose of memantine. Herdaughter-in-law was described the incident as the patient not seeing the glass of water when she was serving. They called the 112 and they transported the patient to the ER. Her examination was normal except for her complain of visual loss and confusion. Her vitals, biochemistry and EKG were found normal. Cranial CT had nonspecific findings compatible with her age and diagnosis. IV infusion was started and patient vision became normal after 40 minutes. The patient was admitted to the neurology ward and after 2 day hospitalization she discharged with no visual complains. Transient ischemic attack, focal seizure, migraine, vazovagal syncope, and anxiety were considered in the differential diagnosis of this case. However, none fully explained the picture. **Conclusions:** In the literature, there are several reports that memantine interacted with the combination of other medications and caused neurological side effects. We reported this case to clinicians should be aware of this potential interaction.

P4-078 LANGUAGE AND SPEECH IMPAIRMENT IN CLINICAL DEMENTIA WITH LEWY BODIES: CLINICAL FEATURES AND POSSIBLE PATHOPHYSIOLOGY

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Background: Recent publication suggested that logopenic progressive aphasia may accompany DLB [Teichmann M et al. JNNP 2012]. Purpose is to discuss language and speech impairment in clinical DLB. **Methods:** Case study. **Results:** Patient 1: An 83-year old right-handed man started to stumble on words, use non-words and have difficulty in understanding for a year. Subsequently, he became confused with cooking, hallucinatory and delusional, showed consciousness fluctuations and shuffling gait. Initial evaluations revealed reduced verbal output, phonological paraphasia, jargon, impaired repetition and comprehension, and cognitive impairment. Brain atrophy and hypoperfusion were accentuated at the left temporo-parietal regions on MRI and SPECT. Phosphorylated (p-) tau and beta-amyloid 42 (A β 42) in CSF suggested concomitant Alzheimer's (AD) pathology. Patient 2: A 90-year old right-handed women presented reduced verbal output, phonological errors, impaired comprehension and cognitive decline for two months. Initial assessment revealed naming difficulty, phonological paraphasia, impaired comprehension and extrapyramidal signs. Brain MRI and SPECT showed atrophy and hypoperfusion accentuated at the left