

PT566**A survey of medication using antipsychotics in patients with dementia.**

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Abstract

Introduction: Recently, the pharmacological treatment has aimed to improve cognitive deficits and behavioral and psychological symptoms of dementia. Antipsychotics are often used for excitement or hyperactivity of dementia and evaluating the efficiency of the medication has been important. We researched the tendency of choice of antidementia drugs and antipsychotics for patients with dementia.

Materials: This study included 96 patients with dementia admitted to Showa University Northern Yokohama Hospital from January 2014 to August 2015 (average age 80.1 ± 8.5 years, average duration of hospitalization 130.8 ± 79.2 days; 37 males and 59 females). 77 were diagnosed as Alzheimer disease, 14 as dementia with Lewy bodies and 5 as other types of dementia.

Methods: We investigated the severity of psychological symptoms on admission and medication for the symptoms. We compared psychological symptoms and The global Assessment Functioning on admission and the use of antipsychotics of patients treated with antidementia drugs with those of patients without antidementia drugs retrospectively by clinical records. This study was approved by the Ethics Committee of Showa University Northern Yokohama Hospital and we considered personal information protection fully.

Result: 66 patients treated with antidementia drugs had more severe excitement or agitation compared to 47 patients without antidementia drugs. 72.7% (48/66) patients received more than two drugs, quetiapine was most used (24.2%, 16/66) and perospirone was secondary used (16.7%, 11/66). Quetiapine tended to aim to improve excitement or agitation for patients with less duration of illness and higher score of GAF. Aripiprazole was most used for patients treated without antidementia drugs.

Conclusion: In this study, antidementia drugs were used toward excitement or agitation, and antipsychotics were added for mood stabilizing or sedation. The study suggested that it is effective to select medication according to characteristics of behavioral and psychological symptoms.

PT567**Improvement to antipsychotic treatment at week 2 predicts subsequent treatment response in behavioral and psychological symptoms with dementia: Analysis of the CATIE-AD data**

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Abstract

Objective: Antipsychotic drugs are frequently used to manage behavioral and psychological symptoms with dementia (BPSD).

However, it still remains unclear as to which factors could serve as predictors of response to antipsychotic treatment. The aim of this study was to examine presence/absence of improvement with antipsychotics at week 2 would be associated with treatment response/non-response at week 8 in patients with BPSD.

Methods: The dataset from 245 subjects (olanzapine, n=90; quetiapine, n=81; risperidone, n=74) who presented with a score of ≥ 1 in the Brief Psychiatric Rating Scale (BPRS) at baseline in Phase 1 of the Clinical Antipsychotic Trials in Intervention Effectiveness with Alzheimer's Disease (CATIE-AD) were used. First, demographic and clinical characteristics associated with response at week 8 were examined, using binary logistic regression analyses. Treatment response was defined as a score reduction of \geq one minimal clinically important difference (MCID) defined as a half of SD in the BPRS. Next, the prediction performance of binary classification in early improvement at week 2 (i.e. presence or absence) for response at week 8 was examined with sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV). Multiple imputation was employed for missing data.

Results: The BPRS total score reduction at week 2 was significantly associated with subsequent response at week 8 (odds ratio, 1.17; 95% confidence interval, 1.11–1.24; $p < 0.05$). Furthermore, the 10% cut-off at week 2 presented with the highest precision (0.67) with sensitivity, specificity, NPV, and PPV of 0.69, 0.67, 0.73, and 0.62, respectively.

Conclusions: Presence or absence of early improvement at week 2 with antipsychotic treatment can be a strong predictor of subsequent response at week 8 in the treatment of BPSD. Evaluating patients early in the course of treatment with antipsychotic drugs can help identify non-responders who may benefit from alternative therapeutic approaches.

PT568**Depressive Symptoms and Progressive Hippocampal Volume Atrophy Accelerates the Conversion Process to Dementia from Mild Cognitive Impairment**

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Abstract

Background: Current literature show that decreased hippocampal volume, an early structural change occurring in dementia, is very common in patients with mild cognitive impairment (MCI). However, it is elusive whether neurodegenerative and resultant clinical trajectories are accelerated in MCI patients with concomitant depressive symptoms. In addition, it is also unclear whether concomitant depression in MCI leads to a faster conversion to dementia from MCI in comparison to those who are not depressed. No longitudinal study has examined whether depressed amnesic MCI (DEP+aMCI) patients show an earlier onset of progression to dementia than non-depressed amnesic MCI (DEP-aMCI) patients and how progressive hippocampal volume reductions are related in the conversion process.

Method: Using data from Alzheimer's Disease Neuroimaging Initiative, we investigated 2 year follow-up data from 38 DEP+aMCI patients and 38 matched DEP-aMCI patients and compared their ages of conversion from aMCI to AD and trajectories of progressive hippocampal volume changes. DEP+

and DEP- patients were defined as having baseline Geriatric Depression Scale (GDS) scores of 5 or above and 0, respectively.

Results: DEP+ converters showed earlier ages of conversion to dementia ($p = 0.009$) and greater left hippocampal volume loss than both DEP- converters and DEP+ non-converters over the 2-year period ($p = 0.003$, $p = 0.001$, respectively). Changes in total brain volume, differences in their clinical symptoms of dementia, daily functioning or apolipoE4 protein genotypes could not explicate these findings. There was no difference in conversion rate to dementia or progressive hippocampal volume change between DEP+ patients and DEP-patients, suggesting that depressive symptoms themselves may not lead to progression of dementia from MCI.

Conclusion: We conclude that there is a synergistic effect of depressive symptoms and smaller left hippocampal volume in MCI patients that accelerates conversion to dementia.

PT569

Association between cerebral amyloid deposition and cognitive function in geriatric depression: pilot study using amyloid PET

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Abstract

Objective: Brain β -amyloid(A β) burden is one of the most important pathophysiological markers of Alzheimer diseases(AD). It is also important to note geriatric depression(GD) is associated with developing AD. But, there are few studies that have examined cortical A β levels in GD. The purpose of this study is exploring relationship between brain amyloid deposition and cognitive function in GD

Methods: Participants included elderly patients over 60-year-old with major depressive disorder who had subjective cognitive complaints, not been diagnosed with dementia yet. Thirteen participants received cognitive assessments by Repeatable Battery for the Assessment of Neuropsychological Status(RBANS), and were checked ^{18}F -labeled amyloid PET. We quantified the standard uptake value ratio(SUVr) as the degree of amyloid deposition. And correlation analysis between amyloid deposition of each brain region and cognitive function performed.

Results: Ten subjects were judged as β -amyloid-negative(A β -), and 3 subjects as β -amyloid-positive(A β +). In both group, mean A β deposition was most in frontal region, followed by occipital, temporal, parietal lobe, and when the brain further subdivided, globus pallidum(GP) was the most deposition region, followed by posterior cingulum, putamen. Differences of the mean A β deposition between A β + and A β - group was found in right orbital frontal region most, followed by precuneus, posterior cingulum. In result of correlation analysis, immediate memory abilities are correlated negatively with amyloid deposition in following brain regions, left caudate, anterior cingulum, left calcarine, left putamen, respectively. Delayed memory abilities are correlated negatively with amyloid deposition in left calcarine. And such correlations also are observed in between visuospatial function and right caudate, between attention and left middle frontal region, negatively.

Conclusion: In patients with GD, A β deposition was most in GP in which typically Alzheimer's disease have a little A β . Memory, attention, and visuospatial function were negatively correlated with amyloid deposition in certain brain region respectively.

PT570

Apathy and Intrinsic Connectivity Networks in the Amnesic Mild Cognitive Impairment

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Abstract

Background: Although there has been several studies reporting that apathy is associated with faster cognitive impairment and earlier conversions to Alzheimer's disease in the amnesic mild cognitive impairment, effects of apathy in the functional large-scale intrinsic connectivity networks (ICN) are not yet clear. The aim of this study is to investigate the distinctive association pattern of apathy on the 3 large-scale ICNs (the DMN, the salience network (SN) and the central executive network (CEN)) in amnesic mild cognitive impairment(aMCI)

Methods: Fifty subjects with amnesic mild cognitive impairments and fifty control subjects underwent resting state functional magnetic resonance imaging. We investigated the association pattern between apathy and intra-functional connectivity (FC) and inter-FC of the DMN, SN and CEN in the aMCI subjects.

Results: We found that the FCs of the DMN, the SN and the CEN were lower in the aMCI group, compared with the control group. Apathy was positively correlated with posterior cingulate FC and negatively correlated with mid frontal FC in the aMCI group. In addition, anterior cingulate FC in the SN were positively correlated with apathy in the aMCI group. The anti-correlation strength between the DMN and the CEN was negatively correlated with apathy in the aMCI group.

Conclusions: Our results of aberrant DMN and SN FC and distinctive correlation patterns between the apathy and FCs in the several ICNs in the amnesic MCI group might reflect very detrimental effect of apathy on functional changes in the course of AD progression.

PT571

Quantification of perivascular drainage in mouse cerebral cortex for the study of its role in Alzheimer's disease

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Abstract

Recently lymphatic vessels in the central nervous system have revealed. The newly-found lymph system begins at subarachnoid space, however, the removal mechanism from the brain parenchyma is still unknown. Perivascular drainage (PVD) is the phenomenon that interstitial fluid and solutes in parenchyma are drained along vessel walls into subarachnoid space. PVD is one of the plausible clearance processes within cortex. Small molecules such as amyloid beta are cleared through this pathway while the contribution of PVD on Alzheimer disease (AD) is not well investigated. This is mainly because there is no standard way to quantify the PVD. Here we propose a novel method and two parameters, uniformity index and delta area above curve (ΔAAC), to quantify the PVD and investigate the role of PVD in AD.

We hypothesized that small molecules movement is mainly dependent both on PVD and diffusion. The PVD would give additional force to move them further toward the draining path. This force can be quantified by observing the amount of movement