methylphenidate group when a refill gap more than 30 days was used. In logistic regression analysis of adherence, we could not find any differences among 4 medication types.

**Conclusions reached**: We suggest that the utilization patterns should be assessed regularly in order to improve future outcomes in children and adolescents with ADHD.

**Keywords**: Attention Deficit Hyperactivity Disorder; Medication Adherence; Methylphenidate; Atomoxetine

**PT554**

Factors that affect the adherence to ADHD medications during a treatment continuation period in children and adolescents: A nationwide retrospective cohort study using Korean Health Insurance Data from 2007 to 2011

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**Abstract**

**Specific objective of the study**: We analyzed data to answer several questions: (1) How old were patients who first refilled their treatment medications used primarily for ADHD, regardless of the medication type? (2) What socio-demographic factors (e.g., age, gender, insurance type, place of living, hospital level, and specialist type) are associated with medication adherence? (3) What medical conditions, such as medication type and comorbid diagnosis, influence adherence?

**Methods used**: To identify the factors associated with ADHD medication adherence and persistence, we analyzed National Health Insurance data, which comprised continuously enrolled Korean National Medical Insurance children (6–18 years) with at least 2 ADHD prescription claims (January 2008–December 2011). We investigated the effects of age cohort, gender, insurance types, professions who prescribe the medication, regions, clinic types, presence of comorbidities, and medication types on adherence to the ADHD medication treatment during the treatment period.

**Summary of results**: The medication type [Atomoxetine (OR=1.77, 1.59–1.97)>ER-MPH (1.28, 1.17–1.39), OROS-MPH (OR=1.27, 1.17–1.39)>IR-MPH (OR=0.84, 0.77–0.92)], age 10–15 [age 10–12 (OR=0.91, 0.85–0.97) and age 13–15 (OR=0.84, 0.79–0.90) vs age 16–18], physician specialty [psychiatrist (OR=1.36, 1.12–1.53) or pediatrician (OR=1.45, 1.23–1.71)], treatment at a private clinic (OR=1.57, 1.51–1.63), and comorbid conditions (OR=1.30, 1.26–1.35) were associated with medication adherence during continuous treatment using a multivariate analysis. However, male gender and insurance type were not associated with the adherence rates.

**Conclusions reached**: We suggest that other factors, including the severity, family history, costs, types of comorbidity, and switching patterns, will be analyzed in future studies.

**Keywords**: Attention Deficit Hyperactivity Disorder; Adherence; Persistence, socio-demographic effect

**PT555**

Association between Sleep Parameters and Cognitive Function in Drug-naïve Children with Attention-deficit Hyperactivity Disorder: A Polysomnographic Study

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**Abstract**

Sleep problems are common among patients with attention-deficit hyperactivity disorder (ADHD), and they are purported to be major causes of behavioral and cognitive dysfunction in ADHD patients. The present study aimed to speculate the relationship between sleep parameters and cognitive function in drug-naïve children with ADHD.

28 patients were recruited to participate in the study, and a polysomnography was used to measure sleep parameters in the subjects. Cognitive measures were collected through utilizing Conners global index for parents version (CGI-P), Wechsler Intelligence Scale for Children-III (WISC-III), and Matching Familiar Figure Test for Korean Children (MFFT-KC). Descriptive statistics were performed to delineate demographic data, sleep parameters and neurocognitive characteristics of ADHD patients.

The suggested correlation analyses were implemented to speculate the association between sleep parameters and neurocognitive measures. Moreover, multiple regression analyses were used to calibrate the best predictors of cognitive function among sleep parameters. Some meaningful correlations were found with regression models suggesting a possibility of slow wave sleep, stage 2 sleep, REM sleep, limb movement index with arousals as predictors of cognitive function in ADHD patients.

Close association with sleep parameters and cognitive function of ADHD patients can be inferred from our study, and further research should be directed towards clarifying this indispensible link.

**Keywords**: ADHD; Cognition; Sleep; Polysomnography

**PT556**

A Case Report of Atomoxetine Related Liver Injury in A Child with Attention Deficit/Hyperactivity Disorder, Autistic Spectrum Disorder and Epilepsy

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**Abstract**

**Objective**: Liver injury is a rare but severe adverse effect of atomoxetine. Most cases of atomoxetine related liver injury were reported in Caucasians. We report a Chinese Han child suffered from acute hepatitis after taking atomoxetine for two months in combination with phenobarbital to enhance our caution of this rare but severe injury related to atomoxetine in clinical practice.

**Results**: The 10-year-old girl is a victim of epilepsy, autism, attention deficit/hyperactivity disorder (ADHD), and they are purported to be major causes of behavioral and cognitive dysfunction in ADHD patients. The present study aimed to speculate the relationship between sleep parameters and cognitive function in drug-naïve children with ADHD.

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**Keywords**: ADHD; Cognition; Sleep; Polysomnography
Abstract
Purpose: Omega-3 polyunsaturated fatty acids (PUFAs), which include eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are important to mental health and physical health. In recent years, a lower level of omega-3 PUFAs has been proposed to be linked with mental disorders that are schizophrenia, depression, dementia, bipolar disorder and attention-deficit / hyperactivity disorder (ADHD). Medications, such as atomoxetine (ATX) and methylphenidate (MPH), improve daily living performance of patients with ADHD. However, Psychotropic drug are not preferred by some patients or families. If a success in achieving a therapeutic effect with the omega-3 fatty acids, that may be compensated from the dietary supplementation.

We report as a pre-stage of replacement therapy study on omega-3 PUFA, since examined for blood PUFA's concentration youth ADHD patient.
Methods: At Nagasaki University Hospital Department of Psychiatry, on November 2010 to May 2015, The subject were ADHD patients aged 9 to 18 years (N = 28). From their medical records of PUFA in blood serum EPA, DHA, Arachidonic acid (AA), date of birth, drug treatment (ATX or MPH), the Global Assessment of Functioning (GAF), Clinical Global Impressions (CGI), ADHD-RS4 were investigated.

Results: In ADHD patients at the Nagasaki University Hospital, it has been clear that the blood omega-3 PUFAs concentration is significantly lower (p<0.01). On the other hand, AA that are classified as omega-6 PUFAs concentration is significantly higher (p<0.01). In addition, From the association with the GAF scores and blood concentration of EPA.

Conclusions: The youth ADHD patients has revealed that the balance of omega-3 and omega-6 PUFAs are collapsed, and the height of the blood EPA levels may relate to these therapeutic sensitivity. From the above facts, We expected to have the usefulness of treatment with omega-3 unsaturated fatty acid supplementation on youth ADHD patients.