the third day: 20 mg/d). Both EA and HA group were added with acupuncture on Baihui(GV20), Yingyang(GV29), Fengchi(GB20), Sanyinjiao(SP6), Neiguan(PC6) and some other acupoints according to patients’ different conditions for 30 min every other day, totally for 6 weeks. The EA group used electrical acupuncture acupoint stimulator (2/15 Hz alternating, LH-202H) at Baihui(GV20), Fengchi(GB20) and Yingyang(GV29). Acupuncture practionors manipulated needles every 15 min and last for 5-10s for each patients in HA group. Hamilton Rating Scale for Depression (HAMD) and Measure Yourself Medical Outcome Profile (MYMOP) were used to evaluate the effectiveness before and after treatment.

**Results:** There was no significant difference among three groups on the baseline. After six weeks, statistical results showed that HAMD Ratio of points of HA and EA are 92.00% and 89.28% respectively, which were higher than paroxetine group (84.71%) (p<0.05), and there was no significant difference between HA and EA group. Both the HAMD and MYMOP scores were significantly different among the three groups (p<0.05). There was no significant difference among three groups in recovery rate (p>0.05). The scores in each domain of MYMOP in EA group and HA group were obviously lower than that of paroxetine group after treatment (p<0.05).

**Conclusion:** Acupuncture significantly reduced the HAMD and MYMOP scores of depression patients. In addition, acupuncture was shown to enhance the effectiveness of conventional drug treatments and also alleviate the main symptoms of depression, thus improving the overall quality of life and make depression patients felt better themselves.

**Contact:** Xuehong Ma, maxh9713@163.com

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OS10.06

**Acupuncture differential effect on chronic and acute low back pain using fMRI**

Meena M. Makary 1, Jeungchan Lee 3, Jun-Hwan Lee 2, Eunyoung Lee 2, Jae-Young Shin 3, Vitaly Napadow 3, Geonho Jahng 4, Kyungmo Park 4

1 Department of Biomedical Engineering, Kyung Hee University
2 Korea Institute of Oriental Medicine
3 Massachusetts General Hospital
4 Kyung Hee University Hospital at Gangdong

**Purpose:** Although acupuncture treatment, which is consisting of many complex components, has proved effective pain reduction for low back pain (LBP) patients, its exact effect on acute and chronic LBP is not clearly understood. Moreover chronic pain is known to be related to hypersensitivity and maladaptation. In this work we aimed to study the brain correlates to acupuncture on acute and chronic pain.

**Methods:** Twenty three LBP patients (27.53±11.97 years old) were divided into (ACUTE, n=12) and (CHRONIC, n=11) groups. A 3 T functional MRI (TR=2 sec) was used. In acupuncture session, both groups got acupuncture at left ST36, left SP11 and bilateral SP13 points (five times stimulation per each point in a pseudo-random order with inter-stimulus interval of 17. 8±1.7 seconds) at around 2 Hz for two seconds per stimulation. General linear model analysis as well as unpaired student t-test were done for the event-related design of the acupuncture session.

**Results:** Both groups experienced needling credibility, visual stimulation and somatosensory needling stimulation. Common activation in somatosensory area (SI, SII, anterior cingulate cortex) and in the salience network (anteriorinsula) were observed in both ACUTE and CHRONIC groups. Greater signal activation in the pain processing area (nucleus accumbens) was found in ACUTE over CHRONIC group. In ACUTE group there were deactivation in the cognitive function area (dorsolateral prefrontal cortex) and activation in the pain evaluation area (inferior frontal gyrus). Clearer default mode network (DMN) deactivation in ACUTE over CHRONIC group was strongly observed.

**Conclusion:** While both groups produced activation in somatosensory area because of needling/sensory afference, ACUTE group has more pain processing, less cognitive processing and more separation in DMN alternation probably because the chronic pain has multi-facets compared to acute pain.

**Contact:** Meena M. Makary, mmakary@khu.ac.kr

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Oral Presentation Session 11: Clinical Research – Herbal Medicines

OS11.01

**Quercetin for Acute Glucose Tolerance in Type 2 Diabetes**

Marisa Pellegrini 1, Sara Parent 2, Lela Altman 3, Ryan Bradley 3

1 Bastyr University
2 University of Washington
3 National College of Natural Medicine

**Purpose:** To test the effects of the dietary polyphenolic compound quercetin on acute glucose tolerance, insulin release and endothelial function following a disaccharide challenge test in people with type 2 diabetes.

**Methods:** Nineteen participants with sub-optimally controlled type 2 diabetes were randomly assigned to take either: quercetin (2 grams), the alpha-glucosidase inhibitor drug Acarbose (100 mg) or placebo in a cross-over fashion on three occasions 5-minutes before consuming a 100 g oral maltose tolerance test (OMTT). Serum glucose and insulin were measured while fasting, and again 30-, 60- and 120-minutes after the OMTT. Endothelial function was also measured while fasting and 90-minutes after the OMTT as the reactive hyperemia index (RHI) using peripheral tonometry. Changes in serum glucose and insulin between fasting and 120-minutes after the OMTT were compared between groups by ANOVA. Changes in RHI post-OMTT were also compared between groups by ANOVA. Exploratory analyses evaluated for within group changes.

**Results:** There were no significant differences in age, gender distribution, fasting glucose, fasting insulin or RHI.
between treatment groups at baseline. Changes in glucose between fasting and 120 minutes post-OMTT did not vary between groups (ANOVA p=0.81). Neither acute insulin response at 30-minutes post-OMTT or changes in insulin between fasting and 120-minutes changed significantly (ANOVA p=0.48 and p=0.62 respectively). Similarly RHI did not change significantly between groups (ANOVA p=0.65). Changes within treatment groups also demonstrated no effects.

**Conclusion:** The polyphenolic compound quercetin at a dose of 2 grams does not acutely affect glucose tolerance, insulin release or endothelial function following a 100-gram maltose challenge in people with sub-optimally controlled type 2 diabetes.

**Contact:** Ryan Bradley, rbradley@ncnm.edu

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**OS11.02**

Development of potential signal to detect herbal medicine-induced ADR: using the EMR-based ADR reporting system in a Korean medicine hospital

Mikyung Kim1, Chang-ho Han2
1 Research Institute of Oriental Medicine, Dongguk University
2 College of Korean Medicine, Dongguk University

**Purpose:** Dongguk University Ilsan Hospital (DUIH) is the only participants including Korean medicine among the hospitals to take part in the Korean regional pharmacovigilance program. It has spontaneous adverse drug reactions (ADR) reporting system in its electronic medical record (EMR) system. We tried to develop potential indicators to detect signals for ADR induced by herbal medicine and evaluate its validity using the data from DUIH.

**Methods:** Every patient have ever been prescribed herbal medicine in DUIH for 5 years since its opening was the subject of the study. The aspartate aminotransferase (AST) and alanine aminotransferase (ALT) values from the first blood test after the prescription date were secured. We set up five indexes including abnormal (abn) ALT, abn AST and ALT (abn LFT), more than the double of reference value in ALT (double ALT), double LFT, and the others. Only the patients meeting the former four criteria were included and we reviewed the EMR of the selected cases to find out whether the prescribed herbal medicine really induced moderate or severe level of ADR (the event). Finally, we evaluated the validity of the four indexes to predict the predefined event.

**Results:** A total of 28,067 people had ever had been prescribed herbal medicine in DUIH during the period and 5,522 had the liver function test results. Among them, 537 were classified to abn ALT, 290 to abn LFT, 131 to double ALT, and 62 to double LFT. The negative predictive value (NPV) of abn LFT for the event prediction was 0.998 and the result was the same when only the ALT value was considered (abn ALT). The same result was reached with the NPV of double LFT and double ALT (0.997).

**Conclusion:** We suggest that ALT is a potential signal for detection of moderate or severe level of ADR induced by herbal medicine.

**Contact:** Mikyung Kim, 01mkkim@gmail.com

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**OS11.03**

Effect of Cardiotonic Pills on Erythrocyte Deformability and Cerebrovascular CO2 Reactivity in Normal Subjects

Hangyul Lee

Department of Cardiovascular and Neurologic Diseases, College of Korean Medicine, Kyung Hee University

**Purpose:** Cardiotonic pills (CP) is a well-known traditional herbal medicine that is widely used to treat cardiovascular diseases. This study was conducted to prove the acute effects of CP on erythrocyte deformability and cerebrovascular CO2 reactivity (CVR) in healthy male subjects.

**Methods:** This study was designed as a cross-over trial in which the healthy male subjects took part for different 2 days with more than 7 days of interval. Erythrocyte deformability in a CP group (n = 10) and a control group (n = 10) will be examined and at present (Jan 2015), 4 subjects have ended both groups. Hyperventilation-induced CVR of the middle cerebral artery using a transcranial Doppler Sonography will be measured also in a CP group (n = 10) and a control group (n = 10) and at present (Jan 2015), 4 subjects have ended CP group. All measurements have been performed prior to and 1, 2, and 3 hours after CP administration in CP group, and water administration in control group.

**Results:** Although there was no statistical significant result, compared to baseline, the erythrocyte deformability increased consistently when control group showed no coherent result. Also CP improved erythrocyte deformability after administration compared to the control group especially at 3 hour, but there’s no significant result yet (P=0.144). The CVR of the middle cerebral artery increased significantly at 3 hours after CP administration compared to baseline. The mean blood pressure and heart rate did not vary from baseline values in all groups.

**Conclusion:** These data suggest that CP administration may improve erythrocyte deformability and cerebral blood flow immediately. Further study is recommended.

**Contact:** Hangyul Lee, gyulee0614@hanmail.net

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