Recent research trends of electrical, magnetic, optical and acoustic stimulations at acupuncture points; a literature review

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Purpose: In parallel with the growing popularity of the clinical practice of acupuncture, research on modern acupuncture-like stimulation devices (ASDs) has been increasing in recent decades. To summarize the research on the four most popular ASDs, which are based on electrical, magnetic, laser and ultrasonic stimulations, with a focus on their effectiveness in human beings.

Methods: We analyzed papers from several medical electronic databases, including Medline, PubMed, the Cochrane Library, and Web of Science. Studies with all types of design and clinical indications that were performed with human subjects and written in English were included. We excluded papers that contained clinical experiments on animals and manual acupuncture techniques, and we also excluded review papers.

Results: A total of 728 studies were found, and 195 studies met our inclusion criteria. The 195 studies were included the 4 types of stimulation methods: 133 studies with electric stimulation (ES), 44 studies with laser stimulation (LS), 16 studies with magnetic stimulation (MS), and 2 studies with ultrasonic stimulation (US). These 4 types of stimulation can be further classified into 13 categories according to their effects. Of these studies, 181 reported therapeutic benefits. A total of 114 studies (58%) used random clinical trials (RCTs), and 109 studies (96%) reported therapeutic benefits among the RCTs.

Conclusion: For the first time, we reviewed the therapeutic effects of the four most popular ASDs which are ES, LS, MS and US. We found that the ES technique was the earliest modern application and the most widely studied among ASDs, and was followed by LS, MS and US. The majority of the studies (32%) focused on the effects of analgesia and pain relief, and brain activity (16%) was an emerging research field. We expect noninvasive or minimally invasive ASDs will become more popular in the acupuncture research due to safety, infection, and convenience.

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P6.011

A Linked Data in Korean Medicine

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Purpose: Linked data is a method of publishing and sharing pieces of data, information, and knowledge on the Web using Semantic Web technologies such as URI, RDF, and HTTP. To share Korean medicine knowledge on the Web, first of all, information on Korean medicine is required to be linked with that on other domains. The aim of this study is to construct knowledge can be published and shared on the Web.

Methods: Information on medicinal materials in Korean medicine is constructed using ontology. Each medicinal material has scientific names, category names, family names, using parts, meridian entries, nature, flavors, toxicities, effects, treatments, and contraindications. All entities are identified with URIs and linked each other using RDF. In particular, scientific names are linked to taxonomy IDs, provided in NCBI.

Results: An ontology for about 800 medicinal materials is constructed. This ontology is also registered in Datahub, where users can publish and share their datasets. In our ontology, 2,119 scientific names are linked to other datasets with bioportal-ncbitaxon namespace. Our linked data can be queried using SPARQL and also downloaded as RDF/XML files in Datahub.

Conclusion: With the recent rising interest in Semantic Web, many people try to construct and publish information as linked data. To share Korean medicine knowledge with other domains on the Web, interlinking between each domain is required. In the future, we plan to link more information on our ontology to other datasets.

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P6.012

Applications on traditional Chinese prescription and medicine of the “spleen stomach damp-heat syndrome” based on modern literature research

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Purpose: Analyze the status and regular pattern on the usage of traditional Chinese prescription and medicine of the “spleen stomach damp-heat syndrome” in the modern literature.

Methods: Taking “spleen stomach damp-heat syndrome” as subject term or title/keyword, the databases of China National Knowledge Infrastructure(CNKI), Wanfang Data Knowledge Service Platform and VIP Information were systematically retrieved for collecting related literature before 2014, the related data was given descriptive and statistical analysis by using Excel software.

Results: 1. The results about application of traditional Chinese prescription of the “spleen stomach damp-heat syndrome”: The classic ancient Chinese medicine prescriptions accounted for 49%,clinical experience prescription of famous old doctor of Traditional Chinese Medicine in the modern, the clinician's self prescription and hospital preparation accounted for 51%; The most commonly traditional Chinese prescriptions are “Pinellia Heart- Purging Decoction (Banxia Xiein Tang)”, “Three-Nut Decoction (Sanren Tang)”, “Coptis and Clearing Gallbladder-Heat Decoction (Huanglian Wendan Tang)” and “Calming the Stomach Powder (Pingwei San)”, and so on. 2. The usage of the frequency in the top 14 of traditional Chinese medicine are Huanglian (rhizoma coptidis),
Clinical Medicine, Beijing University of Chinese Medicine)
P6.013
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(2011CB505105) and NNSF(No.81302915).
not be ignored. This work is supported by 973 pragrame
stomach damp-heat syndrome is most common in diges-
are showing a rising trend; The clinical disease of spleen
Chinese Medicine in the modern and hospital preparation
experience prescription of famous old doctor of Traditional
of the “spleen stomach damp-heat syndrome”, but clinical
medicine prescription is still the backbone in the treatment
P6.014
Construction of biological networks for
Korean medical herb using the text-mining system
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Purpose: For decades, text-mining technology enhanced
the accuracy so that biological researchers can search the
useful biological information easily. In Traditional Korean
Medicine (KTM), the requirement of knowledge based
database about signal transduction pathway is growing to
establish a new hypothesis of biological mechanism of KTM.
To support the knowledge discovery, we construct the biologi-
cal network database for major medical herbs in Korea.
Methods: The biological interaction information ranging
from signal transduction pathway to chemical-protein inter-
action is extracted with text-mining system after downloading
the literature data from Pubmed database. The extracted bio-
logical relation data is stored in graph database and visualized
with biological network navigation system to represent the
relations among genes, proteins and chemicals.
Results: Total 12,455 Pubmed abstracts are downloaded for
488 Korean medical herbs and analyzed with the text-mining
tools based on Abner, Osec4 as biological entity tagger and
MKEM as biological interaction extractor. We collect 35,119
chemical information, 35,952 gene or protein information, and
29,479 interaction information. The biological interaction is
extracted with text-mining system after downloading
from signal transduction pathway to chemical-protein inter-
action and navigating the results. Users can search the
chemical relationship through signal transduction pathways
on this web service.
Conclusion: In this research, we construct knowledge
based biological database for visualizing the biological interac-
tion and developed the web service for searching the biological
interaction and navigating the results. Users can search the
chemical relationship through signal transduction pathways
on this web service.
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Banxia (rhizoma pinelliae), Houpu (cortex magnoliae offici-
nalis), Gancao (radix glycyrrhizae), Chenpi (pericarpium citri
reticulatae), Huangqin ( radix scutellariae), Fuling (poria),
Pugongying (herba taraxaci), Huoxiang (herba pogostemonis),
Cangzhu (rhizoma aeractylodis), Yiyiiren (semen coicis),
Baidoukou (fructus amomi rotundus), Baizhu (rhizoma
atractylodis macrocephalae) and Zhiqiao (fructus auranti-
). 3. The “spleen stomach damp-heat syndrome” is most
common in digestive system diseases, it’s ratio has reached
75%.
Conclusion: At this stage, the classic ancient Chinese
medicine prescription is still the backbone in the treatment
of the “spleen stomach damp-heat syndrome”, but clinical
experience prescription of famous old doctor of Traditional
Chinese Medicine in the modern and hospital preparation
are showing a rising trend; The clinical disease of spleen
stomach damp-heat syndrome is most common in digestive
system diseases, but the other system diseases can also
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The Effect of Tai Chi for Patients with Type 2
Diabetes - Analysis According to the Styles of
Tai Chi Considering the Intensity: Systematic
Review
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Purpose: To compare and analyze the effects of various
Tai Chi styles as an intervention on type 2 diabetes mel-
litus(T2DM) considering the intensity, on which different
opinions have been given.
Methods: We searched articles from 12 databases in
December 2014. We selected randomized controlled clinical
trial (RCT) using Tai Chi on adult patients with T2DM. We
performed quality assessment using Cochrane risk of bias (RoB)
tool. And we conducted a meta-analysis according to the styles
of Tai Chi.
Results: We found 13 RCTs within the inclusion criteria. 8
RCTs were studies about Yang style Tai Chi, 4 RCTs were about
‘Tai Chi for diabetes’ and 1 RCT was about Chen style Tai Chi.
Studies about Yang and Chen styles of Tai Chi showed signif-
ificant effect on T2DM, but studies about ‘Tai Chi for diabetes’
didn’t. The meta-analysis showed positive results of ‘Yang
style Tai Chi’ for fasting blood glucose (FBG) compared to rou-
tine treatment, but failed to show the effects on Hemoglobin
A1c (HbA1c). The meta-analysis of ‘Tai Chi for diabetes’ studies
showed unfavorable effects on HbA1c compared to routine
treatment. And the meta-analysis of 6 studies about all styles
of Tai Chi showed unfavorable effects on HbA1c compared to
routine treatment.
Conclusion: It is thought that Tai Chi could be considered
as an exercise treatment for patients with T2DM. Tai Chi of
high intensity was more effective than that of low intensity
in managing patients with T2DM. Therefore, we recommend
that Tai Chi of high intensity be trained to T2DM patients with
no special conditions and Tai Chi of low intensity be trained
to T2DM patients with bad conditions. However, it is difficult
to reach a firm conclusion because of low quality of included
studies, so further studies are needed.
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