
Nerium oleander is a very popular urban ornamental plant in Europe, but it is also extremely dangerous because it contains several types of glycosides, accidental ingestion of which can cause cardiac arrhythmias and even deaths. The rarity of such cases makes it difficult to think of oleander poisoning without evidences that suggest this possibility as the cause of the unexpected death. This report concerns the discovery of the bodies of 2 young people, a man and a woman, in a forest in conditions of extreme malnutrition. Medicolegal investigations showed neither pathologic nor traumatic causes of death, but the presence of vegetal remains in the stomach was noticed. A common toxicological analysis resulted negative, but the implementation of more detailed investigations showed the presence of digoxin in the blood of both cadavers, excluding the possibility of a pharmaceutical provenience of digoxin, this laboratory result was interpreted as evidence of ingestion of oleander, which contains oleandrine, the cross reaction of which with digoxin is widely described in the literature. Identification of the 2 subjects, which occurred after 4 years, strengthened the hypothesis of accidental poisoning by oleander because it was ascertained that the 2 young people were vegans-extreme vegetarians who reject the ingestion of foods of animal origin and live by eating only what they find in nature.


The National Poison Data System (NPDS) is a national near-real-time surveillance system that improves situational awareness for chemical and poison exposures, according to data from US poison centers. NPDS is the successor to the Toxic Exposure Surveillance System. The Centers for Disease Control and Prevention (CDC) use these data, which are owned and managed by the American Association of Poison Control Centers, to improve public health surveillance for chemical and poison exposures and associated illness, identify early markers of chemical events, and enhance situational awareness during outbreaks. Information recorded in this database is from self-reported calls from the public or health care professionals. In 2009, NPDS detected 22 events of public health significance and CDC used the system to monitor several multistate outbreaks. One of the limitations of the system is that exposures do not necessarily represent a poisoning. Incorporating NPDS data into the public health surveillance network and subsequently using NPDS to rapidly identify chemical and poison exposures exemplifies the importance of the poison centers and NPDS to public health surveillance. This integration provides the opportunity to improve the public health
response to chemical and poison exposures, minimizes morbidity and mortality, and serves as an important step forward in surveillance technology and integration.

BACKGROUND: Chinese herbal medicine is frequently used for treating diabetic peripheral neuropathy in China. Many controlled trials have been undertaken to investigate its efficacy. OBJECTIVES: To assess the beneficial effects and harms of Chinese herbal medicine for people with diabetic peripheral neuropathy. SEARCH STRATEGY: We searched the Cochrane Neuromuscular Disease Group Specialized Register (15 June 2010), the Cochrane Central Register of Controlled Trials (CENTRAL) (Issue 2, 2010 in The Cochrane Library), MEDLINE (January 1966 to June 2010), EMBASE (January 1980 to June 2010), AMED (January 1985 to June 2010), Chinese Biomedical Database (CBM) (1979 to June 2010), Chinese National Knowledge Infrastructure Database (CNKI) (1979 to June 2010), and VIP Chinese Science and Technique Journals Database (1989 to June 2010). We searched for unpublished literature in the Chinese Conference Papers Database and Chinese Dissertation Database (from inception to March 2010). No language or publication restrictions were used. SELECTION CRITERIA: We included randomized controlled trials of Chinese herbal medicine (with a minimum of four weeks treatment duration) for people with diabetic peripheral neuropathy compared with placebo, no intervention, or conventional interventions. Trials of herbal medicine plus a conventional drug versus the drug alone were also included. DATA COLLECTION AND ANALYSIS: Two authors independently extracted data and evaluated trial quality. We contacted study authors for additional information. The data analyses were carried out using Review Manager 5.1 (Cochrane software). MAIN RESULTS: Thirty-nine randomized trials involving 2890 participants were included. All trials were conducted and published in China. Thirty different herbal medicines were tested in these trials, including four single herbs (extracts from a single herb), eight traditional Chinese patent medicines, and 18 self-concocted Chinese herbal compound prescriptions. The trials reported on global symptom improvement (including improvement in numbness or pain) and changes in nerve conduction velocity. There was inadequate reporting on adverse events in the included trials. Most of the trials did not mention whether they monitored adverse effects at all. Only two trials reported adverse events: one occurred in the control group in one trial and in which group was unclear in the other trial. Conclusions cannot be drawn from this review about the safety of herbal medicines due to inadequate reporting. Most of the trials were of low methodological quality and therefore the interpretation of any positive findings for the efficacy of the included Chinese herbal medicines for treating diabetic peripheral neuropathy should be made with caution. AUTHORS’ CONCLUSIONS: Based on this systematic review, there is no evidence to support the objective effectiveness and safety of Chinese herbal medicines for diabetic peripheral neuropathy. No well designed, randomized placebo controlled trial with objective outcome measures has been conducted.

OBJECTIVE: This review focuses on the efficacy and safety of effective herbal medicines in the management of hyperlipidemia in human. METHODS: PubMed, Scopus, Google Scholar, Web of Science, and IranMedex databases were searched up to 11th May 2010. The search terms were "hyperlipidemia" and ("herbal medicine" or "medicine traditional", "extract plant") without narrowing or limiting search elements. All
of the human studies on the effects of herbs with the key outcome of change in lipid profiles were included. RESULTS: Fifty three relevant clinical trials were reviewed for efficacy of plants. This study showed significant decrease in total cholesterol and LDL cholesterol after treatment with Daming capsule (DMC), chunghyul- dan, Glycyrrhiza glabra, garlic powder (Allicor), black tea, green tea, soy drink enriched with plant sterols, licorice, Satureja khuzestanica, Monascus purpureus Went rice, Fenugreek, Commiphora mukul (guggul), Achillea wilhelmsii C. Koch, Ningzhi capsules (NZC), cherry, compositie salviae dropping pill (CSDP), shanzha xiaozhi capsule, Ba-wei-wan (hachimijioigan), rhubarb stalk, Silybum marianum, Rheum Ribes and Jingmingdan granule (primrose oil). Conflicting data exist for red yeast rice, garlic and guggul. No significant adverse effect or mortality were observed except in studies with DMC, guggul, and Terminalia belerica, Terminalia chebula, Emblica officinalis, ginger, and garlic powder (Allium sativum). CONCLUSION: Amongst reviewed studies, 22 natural products were found effective in the treatment of hyperlipidemia that deserve further works to isolate and characterization of their constituents to reach novel therapeutic and more effective agents.

Clinical experience with hydroxocobalamin in acute cyanide poisoning via ingestion remains limited. This case concerns a 35-year-old mentally ill woman who consumed more than 20 apricot kernels. Published literature suggests each kernel would have contained cyanide concentrations ranging from 0.122 to 4.09 mg/g (average 2.92 mg/g). On arrival, the woman appeared asymptomatic with a raised pulse rate and slight metabolic acidosis. Forty minutes after admission (approximately 70 min postingestion), the patient experienced headache, nausea and dyspnoea, and was hypotensive, hypoxic and tachypnoeic. Following treatment with amyl nitrite and sodium thiosulphate, her methaemoglobin level was 10%. This prompted the administration of oxygen, which evoked a slight improvement in her vital signs. Hydroxocobalamin was then administered. After 24 h, she was completely asymptomatic with normalised blood pressure and other haemodynamic parameters. This case reinforces the safety and effectiveness of hydroxocobalamin in acute cyanide poisoning by ingestion.

BACKGROUND: The U.S. Environmental Protection Agency (U.S. EPA) has estimated the neurological benefits of reductions in prenatal methylmercury (MeHg) exposure in past assessments of rules controlling mercury (Hg) emissions. A growing body of evidence suggests that MeHg exposure can also lead to increased risks of adverse cardiovascular impacts in exposed populations. DATA EXTRACTION: The U.S. EPA assembled the authors of this article to participate in a workshop, where we reviewed the current science concerning cardiovascular health effects of MeHg exposure via fish and seafood consumption and provided recommendations concerning whether cardiovascular health effects should be included in future Hg regulatory impact analyses. DATA SYNTHESIS: We found the body of evidence exploring the link between MeHg and acute myocardial infarction (MI) to be sufficiently strong to support its inclusion in future benefits analyses, based both on direct epidemiological evidence of an MeHg-MI link and on MeHg’s association with intermediary impacts that contribute to MI risk.
Although additional research in this area would be beneficial to further clarify key characteristics of this relationship and the biological mechanisms that underlie it, we consider the current epidemiological literature sufficiently robust to support the development of a dose-response function. CONCLUSIONS: We recommend the development of a dose-response function relating MeHg exposures with MIs for use in regulatory benefits analyses of future rules targeting Hg air emissions.


This review focuses on the toxicity and metabolism of T-2 toxin and analytical methods used for the determination of T-2 toxin. Among the naturally occurring trichothecenes in food and feed, T-2 toxin is a cytotoxic fungal secondary metabolite produced by various species of Fusarium. Following ingestion, T-2 toxin causes acute and chronic toxicity and induces apoptosis in the immune system and fetal tissues. T-2 toxin is usually metabolized and eliminated after ingestion, yielding more than 20 metabolites. Consequently, there is a possibility of human consumption of animal products contaminated with T-2 toxin and its metabolites. Several methods for the determination of T-2 toxin based on traditional chromatographic, immunoassay, or mass spectroscopy techniques are described. This review will contribute to a better understanding of T-2 toxin exposure in animals and humans and T-2 toxin metabolism, toxicity, and analytical methods, which may be useful in risk assessment and control of T-2 toxin exposure.


Organophosphate acetylcholine esterase inhibitor poisoning is a major health problem in children. We report an unusual cause of organophosphate acetylcholine esterase inhibitor poisoning. Two children were admitted to the pediatric intensive care unit due to organophosphate acetylcholine esterase inhibitor poisoning after exposure from a home-made shampoo that was used for the treatment of head lice. Owing to no obvious source of poisoning, the diagnosis of organophosphate acetylcholine esterase inhibitor poisoning in one of these patients was delayed. Both patients had an uneventful recovery. Organophosphate acetylcholine esterase inhibitor poisoning from home-made shampoo is possible. In cases where the mode of poisoning is unclear, direct questioning about the use of home-made shampoo is warranted, in these cases the skin and particularly the scalp should be rinsed thoroughly as soon as possible.


ETHNOPHARMACOCOLOGICAL RELEVANCE: Shuang-Huang-Lian (SHL) is a traditional Chinese formula and has been used for the treatment of respiratory tract infections by inhalation. However, the pulmonary toxicity via inhalation is largely uninvestigated. AIM OF STUDY: To evaluate the pulmonary toxicity of SHL following in vivo intratracheal spray to rats and in vitro exposures to A549 and Calu-3 cells. METHODS: Calu-3 and A549 cells were exposed to SHL, chlorogenic acid, baicalin and forsythin solutions and in vitro cytotoxicity was evaluated using an MTT assay, whilst rats were subjected to intratracheal administration of SHL solutions and in vivo toxicity was indicated by assaying the LDH activity and total protein content in bronchoalveolar lavage fluid (BALF) and observing the histopathologic changes of the lungs. Secretion of inflammatory mediators, including IL-6, IL-8 and TNF-alpha, in cell culture media and
Bnip was quantified by ELISA. RESULTS: The MTT cell viability data revealed the presence of minor toxicity to Calu-3 or A549 cells following exposure to SHL and its major ingredients for 24h or 48h. However, the cell cultural media showed no sign of inflammatory responses. The in vivo results showed that exposures to SHL at doses of up to 50mg/kg did not significantly increase the total protein content, the LDH activity and the concentrations of IL-6, IL-8 and TNF-alpha in BALF. However, although intratracheal sprayed SHL at doses of up to 6 mg/kg for histopathologic study and up to 25mg/kg for cell counts showed no sign of adverse effects, inhaled SHL at elevated doses appeared to induce alveolar fusion in the lung and significant increases in the cell number of monocytes and granulocytes in the BALF. CONCLUSION: The results demonstrated that the pulmonary safety of inhaled SHL was dependent on the administered dose. Inhalation therapy of SHL may be safely used when the inhaled dose was properly controlled.


ETHNOPHARMACOLOGICAL RELEVANCE: Gynostemma pentaphyllum (Thunb.) Makino (GP, family Cucurbitaceae), which contains dammarane saponins as its main constituents, is used in China, Japan, and Korea as a traditional medicine to treat cancer, obesity, arteriosclerosis, asthma and senility. AIM OF THE STUDY: To investigate the memory-enhancing effects of GP, Gypenoside TN-2 (TN-2) was isolated by activity-guided fractionation and administered to scopolamine-induced memory-deficient mice. MATERIALS AND METHODS: The memory-enhancing effects of TN-2 were evaluated using passive avoidance, Y-maze, and Morris water maze tests, and the protein expressions of brain-derived neurotrophic factor (BDNF), cAMP element binding protein (CREB), and p-CREB were determined by immunoblotting. RESULTS: TN-2 inhibited memory and learning deficits in scopolamine treated mice in the passive avoidance test. TN-2 (10, 20, and 40 mg/kg, p.o.) significantly inhibited memory and learning deficits in the passive avoidance test by 40%, 96% and 78%, respectively, and exhibited significant memory-enhancing effects on the Y-maze test and the Morris water maze test. TN-2 also markedly increased BDNF expression and activated the transcription factor CREB in the hippocampi of scopolamine-treated mice. CONCLUSIONS: TN-2 may ameliorate memory and learning deficits by activating the CREB-BDNF pathway.


Chinese medicines (CM) have been attracting interest and acceptance in many countries. Quality control is vital for ensuring the safety and efficacy of CM. Usually, CM are used as whole plant and/or combination of several herbs, and multiple constituents are responsible for the therapeutic effects. Therefore, quality control of CM is very difficult. To date, the valid method for quantitatively evaluating the quality of CM is poor. In this article, the strategies for quantification, related to the markers, reference compounds and approaches, in quality control of CM were reviewed and discussed.


Kava-induced liver injury has been demonstrated in a few patients worldwide and appears to be caused by inappropriate quality of the kava raw material. When cases of liver disease in connection with the use of kava emerged, this was an unexpected and challenging event considering the long tradition of safe kava use. In order to prevent kava hepatotoxicity in future, a set of quality specifications as standard is essential for
the preparation not only of kava drugs and kava dietary supplements in the Western world but also for traditional kava drinks in the South Pacific Islands. For all these purposes a uniform approach is required, using water based extracts from the peeled rhizomes and roots of a noble cultivar such as Borogu with at least 5 years of age at the time of harvest. Cultivated in Vanuatu for centuries, noble varieties (as defined in the Vanuatu Kava Act of December 2002) are well tolerated traditional cultivars with a good safety record. At present, Vanuatu kava legislation is inadequately enforced to meet quality issues for kava, and further efforts are required in Vanuatu, in addition to similar legislation in other kava producing South Pacific Islands. Future regulatory and commercial strategies should focus not only on the standardization of kava drugs, kava dietary supplements, and traditional kava extracts, but also on thorough surveillance during the manufacturing process to improve kava quality for safe human use. The efficacy of kava extracts to treat patients with anxiety disorders is well supported, but further clinical trials with aqueous kava extracts are necessary. We thereby propose a six-point kava solution plan: (1) use of a noble kava cultivar such as Borogu, at least 5 years old at time of harvest, (2) use of peeled and dried rhizomes and roots, (3) aqueous extraction, (4) dosage recommendation of \( \leq 250 \text{mg kavalactones per day} \) (for medicinal use), (5) systematic rigorous future research, and (6) a Pan Pacific quality control system enforced by strict policing. In conclusion, at different levels of responsibility, new mandatory approaches are now required to implement quality specification for international acceptance of kava as a safe and effective anxiolytic herb.


BACKGROUND: Chronic heart failure (CHF) is a global public health problem. Therefore, novel and effective drugs that show few side-effects are needed. Early literature studies indicated that Huangqi injection is one of the most commonly used traditional Chinese patent medicines for CHF in China. As a large number of clinical studies has been carried out and published, it is essential to evaluate the effectiveness and safety of Huangqi injection. Therefore, we carried out this systematic review under the support of the framework of the Joint Sino-Italian Laboratory (JoSIL). OBJECTIVES: To evaluate the efficacy and safety of Huangqi injection for CHF according to the available scientific knowledge. METHODS: An extensive search including PubMed, EMBASE, CBM, the Cochrane Library and Chinese literature databases was performed up to July 2008. Clinical trials regarding Huangqi injection for the treatment of CHF were searched for, irrespective of languages. The quality of each trial was assessed according to the Cochrane Reviewers' Handbook 5.0, and RevMan 5.0 provided by the Cochrane Collaboration and STATA 9.2 were used for data analysis. RESULTS: After selection of 1,205 articles, 62 RCTs and quasi-RCTs conducted in China and published in Chinese journals were included in the review. The methodological quality of the trials was low. In most trials inclusion and exclusion criteria were not specified. Furthermore, only one study evaluated the outcomes for drug efficacy after an adequate period of time. For these reasons and because of the different baseline characteristics we did not conduct a meta-analysis. CONCLUSIONS: Although available studies are not adequate to draw a conclusion on the efficacy and safety of Huangqi injection (a traditional Chinese patent medicine), we hope that our work could provide useful experience on further studies on Huangqi injections. The overall level of TCM clinical research needs to be improved so that the efficacy of TCM can be evaluated by the international community and possibly some TCM can enter into the international market.
The present day lifestyle heavily depends on industrial chemicals in the form of agriculture, cosmetics, textiles and medical products. Since the toxicity of the industrial chemicals has been a concern to human health, the need for alternative non-toxic natural products or adjuvants that serve as antidotes are in high demand. We have investigated the effects of Ayurvedic herb Ashwagandha (Withania somnifera) leaf extract on methoxyacetic acid (MAA) induced toxicity. MAA is a major metabolite of ester phthalates that are commonly used in industry as gelling, viscosity and stabilizer reagents. We report that the MAA cause premature senescence of normal human cells by mechanisms that involve ROS generation, DNA and mitochondrial damage. Withanone protects cells from MAA-induced toxicity by suppressing the ROS levels, DNA and mitochondrial damage, and induction of cell defense signaling pathways including Nrf2 and proteasomal degradation. These findings warrant further basic and clinical studies that may promote the use of withanone as a health adjuvant in a variety of consumer products where the toxicity has been a concern because of the use of ester phthalates.


16. Fai CK, Qi GD, Wei DA, Chung LP. Placebo preparation for the proper clinical trial of herbal medicine--requirements, verification and quality control. Recent Pat Inflamm Allergy Drug Discov. 2011;5(2):169-74
Randomized controlled trials (RCT) have been recognized as the gold standard for interventional clinical trials. In many clinical trials of herbal medicine, it is very difficult to create a quality placebo. To achieve the purpose of blinding, the characteristics of the real drug and placebo should be identical in color, appearance, smell and taste. The quality placebo should be identical to the real drug in physical form, sensory perception, packaging, and labeling, and it should have no pharmaceutical activity. The aim of this study was to evaluate a placebo capsule and its matching herbal medicine D&G capsule in physical form, chemical nature, appearance, packaging and labeling. The assessment results suggested that the placebo was satisfactory in these aspects. The results demonstrated that a placebo could be created for a RCT involving herbal medicine. This report also discusses the means to acquire patent.

Acute and subacute investigations were carried out to evaluate the safety of scutellarin, an active flavone glycoside that has been used to treating cardiocerebral vascular diseases and cerebral infarction in rodents. For the acute study, scutellarin was administered to mice by gavage at different dose levels. Scutellarin caused dose-dependent general behavior adverse effects, but the LD values could not be detected, and the maximum tolerated dose was more than 10 g/kg. In the subacute study, scutellarin was administered orally at doses of 100 and 500 mg/kg daily for 30 days to rats. Body weight, heart rate, blood pressure, biochemical, hematological and urine parameters were determined at the end of the experimental day. Daily oral administration for up to 30 days did not result in death or significant changes in hematology, blood chemistries or urinalysis. However, a 30 day regimen of scutellarin at doses of 100 or 500 mg/kg led to non-dose related decreases in BUN and triglyceride
levels. Scutellarin was found to be minimally toxic or non-toxic in rodents. In view of the doses of the components used, the results from acute and subacute toxicity studies suggest that this component has a sufficient margin of safety for therapeutic use.

Data from the American Association of Poison Control Centers (AAPCC) and the Cincinnati-based Drug and Poison Information Center (DPIC) were analyzed to determine the incidence and trends of human plant poisonings since the year 2000. Approximately 3.4% of the approximately 4.3 million annual calls to the AAPCC centers involved plants, with a higher fraction (4.5%) for pediatric exposures. Nearly 70% of plant exposures occurred in children under six. Only 8% of cases required treatment in a health-care facility, and only 0.1% (in 2008) were considered severe outcomes. The most prominent groups of plants involved in exposures are those containing oxalates, and the most common symptom is gastroenteritis. The top 12 identified plants (in descending order) nationally were Spathiphyllum species (peace lily), Philodendron species (philodendron), Euphorbia pulcherrima (poinsettia), Ilex species (holly), Phytolacca americana (pokeweed), Toxicodendron radicans (poison ivy), Capsicum (pepper), Ficus (rubber tree, weeping fig), Crassula argentea (jade plant), Diffenbachia (dumb cane), Epipremnum areum (pothos) and Schlumbergera bridgesii (Christmas cactus). Broad overlaps between the DPIC and the AAPCC incidence data were noted, with essentially the same plant species in each dataset. The nature of the various toxins, the symptomatology and potential treatments are discussed for the highest ranking plant species.

Triptolide, the primary active component of Tripterygium wilfordii Hook F, has various pharmacological activities but also a narrow therapeutic window. Cytochrome P450s are proposed to be responsible for the hydroxylation of triptolide in vitro and CYP3A4 induction by dexamethasone can increase the metabolism of triptolide and decrease the hepatotoxicity in rat. However, triptolide-induced toxicity has not been investigated in an animal model having a suppression of P450 activities. Here we compared the toxicological effects and toxicokinetics of triptolide between liver-specific cytochrome P450 reductase (CPR) knockout (KO) mice (abolished hepatic P450 activities) and wild-type (WT) control mice after a single oral gavage of triptolide at 0.5mg/kg or 1.0mg/kg. A low toxic dose of triptolide at 0.5mg/kg for WT mice resulted in severe toxicities including death in KO mice. Changes in serum biochemistry, hematology and histopathology further indicated much more severe toxicities in multiple organs in KO mice compared to WT mice after triptolide administration. The mono-hydroxylated metabolites of triptolide detected in the blood of WT mice were undetectable in KO mice, accompanied by much higher triptolide levels in the blood and tissues including the liver, kidney, and spleen determined by LC-MS/MS. Taken together, our results confirmed that inactivation of hepatic P450s abolishes the ability in metabolism of triptolide in the liver, subsequently resulting in an increase in bioavailability and toxicity of triptolide in vivo. It is suggested that P450 inhibition/inactivation might pose a significant health risk in the clinic use of triptolide.