Serious psychiatric and neurological adverse effects of herbal medicines: a systematic review

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CRD summary
This review investigated severe psychiatric and neurological adverse events associated with herbal medicines. There was no clear effort to assess the validity of claim of causality in the reports. Therefore, the results can only be used to caution that such adverse events may occur, and to generate hypotheses to be tested in randomised controlled trials, cohort studies or case-control studies.

Authors' objectives
To investigate severe psychiatric and neurological adverse events associated with herbal medicines.

Searching
MEDLINE, EMBASE, the Cochrane Library, AMED and CISCOM were searched from 1990 onwards; the keywords were listed. The search was performed without any language restrictions. The author's own files were also searched. In exemplary cases publications prior to 1990 were included. The bibliographies of eligible studies were checked for relevant literature.

Study selection
Study designs of evaluations included in the review
Case series, case-reports, and epidemiological studies reporting original data were eligible for inclusion.

Specific interventions included in the review
Reports pertaining to any herbal medicine were eligible for inclusion in the review. The author did not specify any particular herbal medicine for inclusion. Reports associated with 13 herbal medicines in total were identified.

Participants included in the review
The author did not provide specific inclusion criteria relating to the type of participant eligible for inclusion.

Outcomes assessed in the review
Psychiatric and neurological adverse events were eligible for inclusion. The adverse events had to be considered potentially serious, i.e. life-threatening, causing permanent damage, or resulting in hospitalisation. Adverse events resulting from non-medicinal (e.g. recreational) use of herbal medicines were excluded.

How were decisions on the relevance of primary studies made?
The author assessed the studies for eligibility.

Assessment of study quality
The author did not state that he assessed validity. The author reported that the studies were validated as far as possible. However, it was unclear from the review how and where this had been done.

Data extraction
The author extracted the data from the studies into tables. The extracted information included a description of the patient population and the herbal remedy investigated, clinical diagnosis of adverse event, other symptoms and the author's comments. Further information on each herbal medicine was also provided.

Methods of synthesis
How were the studies combined?
The studies were combined narratively according to the specific action of the herbal medicine causing the adverse event.

How were differences between studies investigated?
The author separated the discussion of adverse events related to herbal constituents from the adverse events associated with contamination (e.g. with heavy metals), adulteration (with prescription drugs) or substitution, from the adverse events resulting from drug-herb interactions.

Results of the review
There were 27 reports of adverse events related to herbal constituents; 18 adverse event reports associated with contamination, adulteration or substitution; and 12 case reports of adverse events related to herb-drug interactions.

Many herbal constituents have been associated with serious adverse effects. The clinical manifestations include cerebral arteritis, coma, confusion, encephalopathy, hallucinations, stroke, movement disorders, mood disturbances and seizures. The implied herbal remedies include: panax ginseng, eucalyptus, jimson weed, passionflower, neem tree oil, pennyroyal, liquorice, kava, ma-huang, ginkgo and St. John's wort.

Adverse effects may also be caused by contamination, adulteration or substitution of herbal medicines.

Numerous herb-drug interactions have been published as case reports in the medical literature.

Authors' conclusions
Serious psychiatric and neurological adverse events can occur as a result of using herbal medicines.

CRD commentary
The authors performed a systematic search for any report of specified adverse outcomes. There was no clear effort to assess the validity of claim of causality in the reports. The results can only be used to caution that such adverse events may occur, and to generate hypotheses to be tested in randomised controlled trials, cohort studies or case-control studies.

Implications of the review for practice and research
Practice: The author stated that patients interested in using herbal medicines must be educated on the potential side-effects that may occur.

Research: The author did not state any implications for further research.

Bibliographic details

PubMedID
12823164

Indexing Status
Subject indexing assigned by NLM

MeSH
Herbal Medicine; Humans; Mental Disorders /chemically induced /therapy; Nervous System Diseases /chemically induced /therapy; Plant Preparations /adverse effects /therapeutic use; Risk Assessment; Safety
AccessionNumber
12003001378

Date bibliographic record published
31/03/2005

Date abstract record published
31/03/2005

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.