

Evidence of Potential Harmful Interactions between Western Medications and Traditional Chinese Medicine

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Background: Among patients visiting both western and Chinese medical clinics, more than half used western medications with Traditional Chinese Medicine (TCM). It might make patients exposed to some potential harmful interactions, especially for those who take high risk western medications (HRWM) with narrow therapeutic index (i.e., anticoagulants, antiplatelet drugs, and digoxin). Due to ambiguous and sometimes conflicting information as well as the lack of evidence-based studies about using HRWM with TCM, a comprehensive review of existing evidence and facts is needed to facilitate health professionals making informed decisions about appropriate use of HRWM with TCM. The aim of this study was to solicit and review existing evidence and reports associated with HRWM-TCM interactions using a structured literature searching approach.

Methods: Information related to interactions between the HRWM and TCM was retrieved from eight interaction-based textbooks, five web resources and several primary biomedical journals. The article search was conducted in PubMed, EMBASE, Airiti Library, and CNKI, etc. The search years were from 2000 to 2009 and the languages were restricted to English and Chinese. The search terms included the corresponding medical subject headings (MeSH term) and key words. One standardized data abstraction checklist was used to extract all relevant data. Herbs or natural products not used as a TCM were excluded for further analysis. The corresponding mechanisms and severity ratings of HRWM-TCM interactions were retrieved from *MicroMedexR* and *Lexi-InteractR*.

Results: A total of 187 articles/reports retrieved from the databases were included for further evaluation (i.e., 8 theses, 103 review articles, and 76 original studies). Overall, 269 pairs of HRWM-TCM interactions were identified. More than 70% (193 pairs) were interactions between individual HRWM and TCM. Warfarin, digoxin, and aspirin might interact with 68, 54, and 41 individual TCM, respectively. Of 74 (38.3%) interactions with evidence describing the corresponding mechanisms and severity, more than 90% (67 pairs) of interactions were attributable to pharmacodynamic mechanisms. All of these 74 pairs of interactions were rated as moderate or major interactions based on *MicroMedexR* or *Lexi-InteractR*. For instance, interactions between warfarin and Asian ginseng, Dong Quai, Ginger, Ginkgo, and Siberian ginseng, etc, were rated with moderate to major interactions.

Conclusions: Drugs with anticoagulants, antiplatelets, and digoxin were documented to have harmful interactions with some common used TCM. These combinations may increase or reduce the pharmacologic effects of HRWM and cause major or moderate consequences. The findings provide a comprehensive review to facilitate clinical practitioners make informed decisions.