Classification and monitoring safety of Herbal medicines

The renewed interest in the western world for plants used in traditional medicine, and the rapidly growing interest in developing countries to start research programs in this area have, unfortunately, not emphasized the great importance of taxonomic botany and documentation for such research. There is a need to adopt the most commonly used binomial names (including their binomial synonyms) for medicinal plants, to eliminate the confusion created by the common names.

Artemisia absinthium L. for example, contains an active narcotic derivative, which can cause central nervous system disorders and generalized mental deterioration. This herb has at least 11 different common names (wormwood, absinthium, absinth, absinthe, madderwort, wermuth, mugwort, mingwort, warmot, magenkraut and herba absinthii), 7 of which bear no resemblance to its botanical name. Because mainly common names are used, Heliotropium europaeum (heliotrope), containing pyrrolidine alkaloids, potent hepatotoxins, is often confused with Valerian officinalis (garden heliotrope), containing valepotriates, which act as a sedative and muscle relaxant in laboratory animals.

The exact scientific name of the plant, the plant part used and the name of the manufacturer are very important pieces of information when writing ADR reports on herbal medicines. Solving the existing problems requires the collaboration of botanists, phytochemists and pharmacologists.

Uppsala Monitoring Centre has undertaken a project with the aim of attaining global standardization for herbal medicines. The scope was to standardize information about herbal medicines, including their scientific names and therapeutic implications, which can vary widely between countries. The structure of the ATC-system, developed for classification of orthodox medicines, was used as a basis for the Herbal ATC structure (see Publications, Herbal ATC Classification). The UMC collaborates with the Department of Botany, Uppsala University and the Royal Botanical Gardens at Kew in the UK, and with other international experts.

The UMC is carrying out research on Traditional Chinese Medicine to identify acceptable scientific names. An example of a multi-ingredient herbal preparation is Yi Xian Wan which shows herbal ingredients, elements of animal origin and minerals, all of which require accurate identification.

In the WHO database, as of December 2010, there were 12 679 suspected/interacting case reports where only herbal substances were involved and 21 951 reports which included both herbal and non-herbal substances.
The most commonly reported critical terms for adverse drug reactions on herbal drugs are:

Drug abuse 630
Drug dependence 274
Hepatitis 263
Death 176
Angioedema 169
Coma 162
Face oedema 160
Anaphylactic shock 151
Cardiac arrest 150
Thrombocytopenia 118
Anaphylactoid reaction 116
Hallucination 115
Asthma 111
Respiratory depression 105
Purpura 103
Prothrombin decreased 92
Aggressive reaction 89
Epistaxis 89
Hepatitis cholestatic 83
Bronchospasm 79
Circulatory failure 77
Oedema mouth 77

The most commonly reported herbals are:

Cannabis sativa L. 1057
Ginkgo biloba L. 960
Hypericum perforatum L. 713
Herbal pollen extract nos 690
Senna alexandrina Mill. 435
Herbal extract nos 331
Cimicifuga racemosa (L.) Nutt. 312
Echinacea purpurea (L.) Moench 302
Plantago ovata Forssk. 287
Serenoa repens (Bartram) Small 284
Glycine max (L.) Merr. 276
Oenothera biennis L. 274
Vitis vinifera L. 206
Mentha x piperita L. 205
Citrus x paradisi Macfad. 195
Valeriana officinalis L. 192
Silybum marianum (L.) Gaertn. 174
Viscum album L. 172
Allium sativum L. 162
Vitex agnus-castus L. 142
Pelargonium reniforme root, Curtis 130
Digitalis purpurea L. 129
Ginseng NOS 125
We need more reports - and more accurate information!

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Herbal ATC Classification

In 1998, De Smet proposed a system for ATC classification of herbal remedies which is fully compatible with the regular system. With a few modifications this system has now been adopted and is given in the guidelines.

The Herbal ATC Index lists Herbal ATC (HATC) codes per substance, while the Guidelines for Herbal ATC Classification help to assign HATC codes to herbal remedies. In both the ATC and Herbal ATC systems remedies are divided into groups according to their therapeutic use. Whenever possible the level 1-4 codes in the herbal system are equal to the levels in the regular ATC system.

So far we have been dealing with single herbs; now the UMC has begun assignment of herbal ATC combinations, and it is hoped that the next issue will contain combination assignments.

If you are interested in these publications, please contact info@who-umc.org