

## Article: Gynaecomastia and the Herbal Tonic “Dong Quai”

Dear Sir,

Goh and Loh<sup>(1)</sup> reported a single case of a man who developed gynaecomastia after ingestion of a herbal tonic ‘Dong Quai’ pills. The report highlighted the important aspects about TCM (Traditional Chinese Medicine), especially the patent TCM medicine or dietary supplements.

When a patient developed side effects after taking TCM, instead of incriminating the whole herb as toxic, it is more important to know how the drug was prepared and what exactly the patient had taken. Physicians should know that the whole herb prepared in the traditional way such as decoction is entirely different from patent herbal medicine prepared by modern pharmaceutical method. There are many reports of adverse effects of patent herbal medicine.

The authors highlighted the toxicity of Dong Quai (*Angelica sinensis* or Dang Gui), and suggested that phytoestrogen contained in this patent medicine ‘Dong Quai’ pill, might have caused the side effects.

The herb Dong Quai is not the same as Dong Quai pill. The authors did not document the phytoestrogen contents in the pill. It is not known whether the pill contains the whole single herb, a chemical extracted from a herb, or mix with western drugs. If it is so then the pill is more akin to a novel and unlicensed drug! Hirata et al<sup>(2)</sup> found that when used alone, Dong Quai does not produce oestrogen-like responses and was no more helpful than placebo in relieving menopausal symptoms.

The Chinese have consumed Dong Quai prepared in the traditional way for many centuries with no widely publicised adverse effects. The therapeutic properties of Dong Quai could have been altered in the process of preparation by using modern pharmaceutical approach.

The chemistry of whole herbs involves complex interactions among their constituents that are poorly understood. It is believed that the active ingredients of the herb might have complementary, enhancement, neutralising, offsetting, and antagonistic effects in the body. That may explain why toxic or adverse effects have seldom been encountered.

There is evidence that whole herbs are significantly less toxic than single “active ingredient” isolated from them<sup>(3)</sup>. There are no reports in the literature of any problems with the whole herb Dong Quai. Most side effects from herbs are not being caused by traditional medicines but by modern formulations containing a single extracted chemical only, or combining Chinese herbs with Western drugs.

It is advocated Chinese herbs should be prescribed in the traditional manner, according to an individualised diagnosis based on the theory and practice of Oriental medicine. The herbs should be used according to their traditional indications and in established combinations.

Modern medicine applies the concept of extraction of active ingredients from the medicinal plants. The extracted active ingredients or the processed product might contain a concentrated amount of pharmacologically active constituent that exerts its effect in the human body with its potential toxic effects. One needs to take into consideration the complex mixture of chemicals in herbal medicine prepared by modern or western methods and marketed as pills, mixtures or intravenous solutions and how they are to be used in humans.

Traditionally in TCM, it is the whole herb that is prescribed as formulation. A single herb used in traditional medicine came from the raw plant, known as *sheng cao yao*. It then underwent many preparatory processes with physical or chemical changes such as drying, baking, roasting, frying, immersing in vinegar or alcohol, etc, before it becomes a herb *yao cai*. For consumption the herbs are prepared as decoction and these herbs had already undergone numerous physical or chemical changes that might reduce the side effect or toxicity, or the properties altered.

Whenever a herb is used in novel ways, then careful and thorough clinical research and monitoring must be undertaken.

Drugs containing a single chemical extracted from herb can no longer be considered as TCM practice or “herbal”. It is more akin to a novel and unlicensed drug! It is in fact a modern formulation with pharmaceutical approach. The drug might have unknown direct toxic effect!

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#### REFERENCES

1. Goh SY, Loh KC. Gynaecomastia and the herbal tonic 'Dong Quai'. Singapore Med J 2001; 42:115-6.
2. Hirata JD, Swiersz LM, Zell B, Small R, Ettinger B. Does dong quai have estrogenic effects in postmenopausal women? A double-blind, placebo-controlled trial. Fertil Steril 1997; 68:981-6.
3. Whitelegg M. In defence of Comfrey. European Journal of Herbal Medicine 1994; 1:11-7.

Reply From Authors

Dear Editor,

We would like to thank the writer of the above letter as our case report precisely highlighted the important aspects of patent herbal medicine prepared by purportedly modern pharmaceutical method. The writer and expanded on the potential ramifications of the herbal medicine prepared by modern methods and marketed as pills or other preparations, for which we concur fully. The processed “Dong Quai” pill was believed to be responsible for reversible gynaecomastia in our subject based on the temporal relationship. Of note, the product label (as shown in figure 1 of our case report) indicated *100% “Dong Quai” root powder as the ingredient, emphasising no fillers or additives*. It is reasonable to postulate that the processed “Dong Quai” pill might contain a concentrated amount of pharmacologically active constituent causing the undesirable effect in our subject. Unfortunately, our attempt to document the phytoestrogen contents in the pill was unsuccessful because of the lack of expertise and facility to study phytoestrogens locally.

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