Comfrey Herb: Danger or Not?

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Summary: Comfrey is an herbal medicine with a history of efficacious use in humans. However, owing to the presence in comfrey of pyrrolizidine alkaloids (PAs), which are compounds known to be hepatotoxic, many countries have restricted its availability. This review emphasizes crucial aspects of PA toxicity, and suggests that comfrey might not be as dangerous to humans as current restrictions indicate.

Clinical Discussion: I have used Comfrey as a medical herb for almost thirty years. Back then we all did (use it) for bone healing and many other purposes. We were trained to use it as any potent herb and actually no herbalist or physician I have known (and the use spans over 70 years of various practices as many of my mentors are dead) NEVER saw a single case of PA or other toxicity.

Yes one needs to use it as an acute / subacute and dose with food. Other than that the issues of PA toxicity were overblown (see reasons below) and the last researcher to look at toxicity (Rode – see below) basically says what I do.

So teachers of my generation in cautioning of PA toxicity (always good to know) did create the loss of an excellent medicinal herb by creating a situation where fear triumphed over clinical reality.

In fracture or significant orthopedic injury / surgery we all used the same basic dosing which was test dose of 1 capsule with food (very important) BID-TID then after a week 2 BID-TID for 4-6 weeks.

Where does the concern come from?

Although not without merit, the comfrey research presented in the scientific literature has limited value in determining safety in humans for the following reasons:

- Isolated constituents do not reflect the actions of the whole plant. Additionally the two species of Symphytum are QUITE different in PA content and most used for herbal meds are of the low to no PA species.

There are two species of comfrey: wild comfrey, Symphytum officinale, and cultivated comfrey, Symphytum uplandica x. (The "x" means it is a hybrid, a cross.) Wild comfrey (S. off.) is a small plant--up to three feet tall--with yellow flowers. Cultivated comfrey (S. uplandica x.) is a large plant--often six feet

or more --with blue or purple flowers. ** Most all herbal companies grow uplandica and that is what is sold in stores. But many usually mislabel it, causing confusion.

To complicate the situation even more: the roots and the leaves of comfrey contain different constituents. Comfrey roots, like most perennial roots, contain poisons. Wild comfrey (officinale) leaves have some of the same poisons. But cultivated comfrey (uplandica) leaves don't.

- In many instances, isolated comfrey PAs were used instead of the whole plant. Research suggests, that other components in comfrey (protein, anti-oxidants) may protect against toxicity.
- The predominant animal model used to test comfrey toxicity was rats. In general, rats display a different reaction to PA poisoning than humans. Further, animal species display a wide range of susceptibility to PAs and respond differently to different PAs. Given such species diversity the only way to determine human susceptibility is to test humans.
- Dosing has been too high and not specific enough (see my dose recommendations).
- Studies with animals used amounts of comfrey higher than the amounts typically ingested by humans.
- Route of administration wrong. -- Some studies with animals injected the PAs into the animal. This route of administration would result in increased toxicity of the PAs.
- Confounding factors in poisoning reports leading to inconclusive attribution.
- Individual susceptibility to PAs can be expected, but all case reports have confounding factors (concurrent illness, use of other medications, or protein deficiency) that would increase susceptibility further.
- Extrapolation from other PA poisoning in humans not possible.
- Research or case reports involving PAs other than those in comfrey cannot be used since the extent of PA toxicity depends on the specific PA.

Reference cited:

Rode, Dorena. Comfrey toxicity revisited. Pharmacol Sci. 2002 Nov;23(11):497-9.