Clinical Studies on Berberine

Diarrhea

Author/Year	Subject	Design	Duration	Dosage	Preparation	Results/Conclusion
Rabbani *et al.*, 1987	Diarrhea	R, C n=165 adult males with *E. coli* or *Vibrio cholerae* diarrhea	24 hours	400 mg berberine sulfate in a single dose	Berberine sulfate, or berberine sulfate and tetracycline, or tetracycline	In *E. coli* bacterial diarrhea, during 24 hours, berberine demonstrated a 48% reduction in mean stool volumes compared to control ($p<0.05$). Also reduced liquid diarrheal stools by 42% in treated group and 20% in control. *V. cholerae* diarrhea patients who received berberine alone had significantly reduced stool volume ($p< 0.05$) over control group. *V. cholerae* patients receiving both berberine and tetracycline did not show a significant decrease in stool volume compared to patients treated with tetracycline alone.
Gupte, 1975	Giardiasis (documented)	C, Cm n=137 children ages 5 months–14 years on berberine vs. 242 patients on metronidazole	5 or 10 days berberine; 5–7 days metronidazole	5 or 10 mg/kg/day of berberine vs. 20 mg/kg/day of metronidazole	Berberine or metronidazole	90% of children who received berberine in the 10 mg/kg/day dose had negative stool specimens after 10 days; 83% remained negative one month later. This compared closely to the effect of metronidazole at 95% after 10 days and 90% after one month. The author concluded berberine is an appropriate choice due to ease of administration and freedom from side effects common with metronidazole.

Ocular Infections

Author/Year	Subject	Design	Duration	Dosage	Preparation	Results/Conclusion
Babbar *et al.*, 1982	Ocular trachoma infections	C n=51	3 weeks, follow-up after 1 year	0.2% berberine chloride eye drops, or 0.2% berberine chloride with 20% sulfacetamide, or 20% sulfacetamide	Berberine chloride or sulfacetamide	Subjects taking only 20% sulfacetamide had slightly better improvement in the areas of conjunctival congestion, pupillary reaction, and follicle number. But subjects still tested positive for *C. trachomatis*. Subjects with 0.2% berberine either by itself or combined with sulfacetamide demonstrated symptom improvement and tested negative for *C. trachomatis*, with no relapse one year later.

Cardiovascular Effect

Author/Year	Subject	Design	Duration	Dosage	Preparation	Results/Conclusion
Marin-Neto *et al.*, 1988	Refractory congestive heart failure	C n=12	30 minutes	0.02 and 0.2 mg/kg per minute	Berberine intravenous infusion	No significant response in lower dose. The dose of 0.2 mg/kg per minute decreased systemic (48%) and pulmonary (41%) vascular resistance, 28% decrease in right atrium, and 32% decrease in left ventricular end-diastolic pressure. Increases were observed in the cardiac index (45%), left ventricular ejection fraction (56%), and stroke index (45%). *Torsades de pointes* observed in 4 patients, concluding more research required before berberine can be recommended in i.v. cardiac therapy.
Huang, 1990b	Ventricular tachyarrhythmias	OB n=100 healthy volunteers	24–48 hours monitoring	Not stated	Berberine, route of administration not stated	65% of patients had 50% or greater, and 38% of patients had 90% or greater suppression of premature ventricular contractions (PVC's). No severe side effects were noted. However, mild gastrointestinal symptoms were reported by some patients.

KEY: C – controlled, **CC** – case-control, **CH** – cohort, **CI** – confidence interval, **Cm** – comparison, **CO** – crossover, **CS** – cross-sectional, **DB** – double-blind, **E** – epidemiological, **LC** – longitudinal cohort, **MA** – meta-analysis, **MC** – multi-center, **n** – number of patients, **O** – open, **OB** – observational, **OL** – open label, **OR** – odds ratio, **P** – prospective, **PB** – patient-blind, **PC** – placebo-controlled, **PG** – parallel group, **PS** – pilot study, **R** – randomized, **RC** – reference-controlled, **RCS** – retrospective cross-sectional, **RS** - retrospective, **S** – surveillance, **SB** – single-blind, **SC** – single-center, **U** – uncontrolled, **UP** – unpublished, **VC** – vehicle-controlled.