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Effect of cyclosporine on the pharmacokinetics of colchicine in healthy subjects

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Abstract

Objective: Colchicine and cyclosporine are often administered together, particularly in patients who have undergone solid-organ transplantation. However, the potential for drug-drug interactions between these agents resulting in colchicine toxicity is high. Methods: This study sought to determine the effect of cyclosporine (100-mg capsule) on the pharmacokinetics of the US Food and Drug Administration-approved formulation of colchicine (0.6-mg tablet) after single oral-dose administration in 24 healthy subjects under fasted conditions in a phase 1, single-sequence, 2-period drug-drug interaction trial. Results: Coadministration of cyclosporine increased colchicine maximum observed plasma concentration, area under the plasma concentration-time curve to the last measurable time point, and area under the plasma concentration-time curve to time infinity on average by 224%, 216%, and 215% (ie, almost doubled), respectively, and decreased colchicine oral clearance on average by 72% (from 48.24 to 13.42 L/h), indicating substantially higher colchicine exposures when combined with cyclosporine, compared with colchicine alone. Conclusion: The dose of colchicine should be reduced by ≥ 50% when colchicine and cyclosporine are administered concurrently for treatment and prophylaxis of gout flares or treatment of patients with familial Mediterranean fever. Health care professionals should be vigilant for potential adverse events during colchicine/cyclosporine coadministration, notably in patients who have undergone solid-organ transplantation.