

# Abstract

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## The prevalence of thiamin deficiency in hospitalized patients with congestive heart failure.

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**OBJECTIVES:** The purpose of this study was to determine the prevalence of thiamin deficiency (TD) in a cross section of hospitalized congestive heart failure (CHF) patients and to investigate factors that contribute to its development.

**BACKGROUND:** Thiamin deficiency manifests as symptoms of CHF and, therefore, may worsen existing heart failure. Congestive heart failure patients may be at increased risk for TD as a result of diuretic-induced urine thiamin excretion, disease severity, malnutrition, and advanced age.

**METHODS:** Erythrocyte thiamin pyrophosphate concentrations, using high-performance liquid chromatography, were measured in 100 CHF patients and compared to 50 control subjects. Variables including diuretics (type and dose), left ventricle dysfunction, New York Heart Association functional classification, creatinine clearance, thiamin intake (diet and supplements), malnutrition, appetite ratings, and age were related to TD using univariate statistics and multiple logistic regression analysis.

**RESULTS:** Thiamin deficiency was more prevalent in CHF patients (33%) compared to control subjects (12%) ( $p = 0.007$ ). Thiamin deficiency was related to urine thiamin loss ( $p = 0.03$ ), non-use of thiamin-containing supplements ( $p = 0.06$ ), and preserved renal function ( $p = 0.05$ ). Increased urinary thiamin loss ( $\mu\text{g/g creatinine}$ ) was found to be the only significant positive predictor of thiamin status on multiple logistic regression analysis ( $p = 0.03$ ).

**CONCLUSIONS:** One-third of hospitalized CHF patients were TD. In contrast to previous studies, increased urinary losses of thiamin were predictive of improved thiamin status. Thiamin supplementation may be protective against TD in the clinical setting. Future studies are warranted to determine if thiamin supplementation improves thiamin status and disease severity in CHF patients.

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