

TRYPTOPHAN DEFICIENCY IS FREQUENT IN THE WESTERNIZED POPULATION AND INSTIGATES SEVERE COURSE OF INTERNAL-MEDICINE DISEASES

Konrad Aden

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Tryptophan deficiency is frequent in the western population (39.3% of healthy controls, 30.2% of GI disease patients) and associates with longer hospitalisations, more procedures, and higher mortality in internal-medicine and gastrointestinal diseases.

KEY POINTS

- In 15,188 healthy controls, 39.3% had tryptophan deficiency (lowest quartile), which inversely correlated with self-reported symptoms including gastrointestinal symptoms.
- Among 4,349 emergency-ward patients, tryptophan deficiency was present in 26.6% overall and 30.2% of the 516 gastrointestinal disease patients (ICD-10 K00-K93), versus 1.4% of healthy controls.
- In gastrointestinal diseases, patients in the lowest versus highest tryptophan quartile had 3.91 days longer hospitalisation, 0.48 days longer ICU stays, and 3.3 more in-hospital procedures.
- Baseline tryptophan showed low-to-moderate predictive value (AUROC 0.54–0.62) for complicated outcomes in GI diseases, including hospitalisation longer than 7 days, ICU admission, and death.
- Tryptophan reduction was pronounced even when C-reactive protein was below 5 mg/L, suggesting tryptophan may reflect chronic low-grade inflammation not captured by standard markers.
- The authors propose that tryptophan degradation along the de novo NAD synthesis pathway is an overarching metabolic hallmark of chronic low-grade inflammation and a risk factor for severe disease courses.

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