

Effects of Dietary Tryptophan Restrictions on Clinical Symptoms in Patients with Endogenous Asthma

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The essential amino acid tryptophan is the precursor of serotonin (5-HT). It is well known that 5-HT can induce bronchoconstriction in asthmatic patients (1). It is also known that the metabolites of 5-HT are increased in the urine of asthmatics (2). In a recent paper we have demonstrated that platelets from asthmatics have reduced transport capacity for 5-HT (3). In another recent paper the same alteration was observed in platelets from patients with migraine, urticaria and flush, and, when these patients were given a tryptophan-reduced diet, both the symptoms and the 5-HT kinetics were improved (4). Thus we also wanted to test if a tryptophan-reduced diet could improve the symptoms of asthmatics.

Eighteen patients, 10 men and eight women (age 32-71 years) participated in the study. All patients suffered from endogenous asthma according to the definition given by Spector (5). Patients with other diseases were excluded from the study. All patients were treated with standard asthmatic drugs such as terbutaline, theophylline, cromoglycate and steroids. The medication was not altered during the investigation.

Two diets were given to the patients: "Diet A" contained low amounts of tryptophan and "Diet B" contained normal amounts of tryptophan (Table 1). Foods containing salicylic acid,

Table 1

	Diet A	Diet B
Content of diet:		
Tryptophan (mg)	350	1,200
Protein (g)	32.2	93.8
Fat (g)	82.4	52.0
Carbohydrate (g)	257	273
Kcal	1,900	1,900
Number of patients with:		
Subjective preference (two patients were indifferent)	12*	4
Highest mean peak flow	14**	4

* $P < 0.05$ (Binominal test).

** $P < 0.02$ (Binominal test).

benzoic acid, preservatives and colouring were excluded from both diets.

The experiments were arranged with a double-blind cross-over technique. All patients had either "Diet A" or "Diet B" for a period of 1 month. The patients recorded their subjective symptoms and recorded morning, noon and afternoon peak flow (PEF) values with a mini-Wright peak flow meter.

The low-tryptophan diet was preferred by a majority of the patients and an improvement during that diet could also be verified in the

daily peak flow value measurements (Table 1). The increases in PEF values were usually low (10–15%), yet significant ($P < 0.02$). It must be considered that the patients received full pharmacological treatment including β_2 -agonist aerosol, and the pharmacological treatment was constant during the whole investigation period. The results in this pilot study indicate that this type of diet can improve the symptoms in patients with endogenous asthma.

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