

TEACHING CASE REPORT

The dietary supplement 5-hydroxytryptophan and urinary 5-hydroxyindole acetic acid

The case: A 56-year-old woman presented with diarrhea (6–8 loose stools daily with no obvious blood). The diarrhea was intermittent but had persisted for 12 weeks. The patient reported having some fecal incontinence.

The patient had no family history of inflammatory bowel disease, and she had not travelled to a foreign country. She had no weight loss and was not taking prescription drugs. A physical examination was unremarkable, and the loose stool in her rectum was negative for occult blood.

The results of a stool culture were negative for ova and parasites. The patient's hemoglobin level, leukocyte count and platelet count were normal. The levels of her liver enzymes, calcium, phosphate and serum albumin were normal, as were the results of protein electrophoresis. The results of antigen screening for *Clostridium difficile* were negative. A 24-hour urine collection showed a total output of 393 (normal 10–40) μmol 5-hydroxyindole acetic acid (5-HIAA, tested by reverse phase high performance liquid chromatography). Her serum chromogranin A level was 13 (normal < 40) U/L.

A medical oncologist suggested that carcinoid syndrome should be seriously considered despite the patient's normal serum chromogranin A level. The results of chest and abdomen computed tomography scans did not show any abnormalities, except for small hepatic and renal cysts. The patient was told that her urinary 5-hydroxyindole acetic acid level was compatible with a disseminated carcinoid malignancy and that further tests were urgently required.

During an appointment to sign consent for endoscopy of the upper and lower gastrointestinal tract, the

patient reported that, for the last 18 months, she had been taking 5-hydroxytryptophan (5-HTP, 100 mg daily, Natural Factors, Coquitlam, BC), which she had purchased from a local health food store. The patient was advised to stop taking this supplement, and a 24-hour urine collection to test for 5-hydroxyindole acetic acid was repeated 2 weeks later. At this time, the 24-hour excretion of 5-hydroxyindole acetic acid was 18 μmol . Her diarrhea also improved and had not returned 6 months later.

5-Hydroxytryptophan is decarboxylated to serotonin (5-HT) by aromatic L-amino decarboxylase in both nervous tissue and the periphery. 5-Hydroxytryptophan from plant sources (usually from the seeds of *Griffonia simplicifolia*, Figure 1) is advertised and sold by alternative practitioners as a therapy for mild depression and other mood disorders. The evidence for its efficacy is mixed and is mainly from case reports and small randomized trials.¹ Ingestion of 5-hydroxytryptophan increases the urinary excretion of 5-hydroxyindole acetic acid.¹

We found no dose–response studies of 5-hydroxyindole acetic acid excretion levels in humans following oral ingestion of 5-hydroxytryptophan. However, our patient, who was taking a regular dose of 100 mg of 5-hydroxytryptophan daily, excreted a 5-hydroxyindole acetic acid level 10 times the normal upper limit in 24 hours. We did not assess the actual amount of 5-hydroxytryptophan in the commercial preparation.

When patients are to have their urinary 5-hydroxyindole acetic acid levels measured to screen for carcinoid syn-



Image provided by Agribusiness in Sustainable Natural African Plant Products

Figure 1: *Griffonia simplicifolia* pods.

drome, they are advised about dietary precautions that must be observed for 3 days before and during the collection, including avoiding of broccoli, cauliflower, avocados, bananas, plums, walnuts, tomatoes, kiwi fruit, eggplant, processed meat, fish, seafood and alcohol.² Certain drugs may also alter the test results, including monoamine oxidase inhibitors, acetaminophen, caffeine, 5-fluorouracil, phenacetin, phenothiazine, cisplatin, melphalan, reserpine and rauwolfia. In addition, patients should be advised to tell their physician if they are taking alternative over-the-counter medications.

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