

Hemopyrrolactamuria (HPU)

The metabolic disorder HPU causes high losses of micronutrients, an impairment of the endogenous detoxification system, and a deficit of heme.

Hemopyrrolactamuria (HPU) is a genetically determined metabolic disorder with a familial predisposition. It is also known in the literature under the historic name cryptopyrroluria or malvaria.

So-called “mauve factor” (malvaria), first detected predominantly in schizophrenic patients by Pfeiffer, Hoffer and colleagues in the 1970s, for many years went under the name **cryptopyrrol**. **Today it has been more specifically elucidated:** the compound in question is hemopyrrol, or more exactly hydroxyhemopyrrol-2-1 (HPL). Patients shown to be excreting the HPU complex generally exhibit weak spots in several enzymes of the heme biosynthetic pathway. The increase in toxic intermediate products in the heme biosynthesis process results in a raised production of hemopyrrolactam complexes. The name hemopyrrolactamuria already indicates that the disorder involves an **impairment of the heme synthesis process** in which pathological heme complexes are formed and subsequently excreted with the urine. The organism facilitates this excretion by binding the heme complexes to active vitamin B6 and zinc, and to a certain extent also to manganese. The complexes that are not excreted in this way may in turn have toxic (even neurotoxic) effects, promote autoimmune diseases, lead to oxidative stress, and pave the way for mitochondriopathic disorders.

In this way, HPU results in massive losses of active vitamin B6, zinc, and to a certain extent also manganese.

These losses cannot be entirely balanced by nutrition alone. The problem frequently remains undetected, and the deficits increasingly worsen over the years, laying the ground for several kinds of health disorders. HPU affects one in every ten women and roughly one in every hundred men. We assume that the incidence is far higher among people who are already ill.

Besides factors of genetic predisposition, **acquired forms** of HPU/CPU have also been reported. Heufelder and Kuklinski, for example, describe cases in which **exposure to heavy metals** (amalgam) or **cervical-spine trauma** are considered responsible factors for triggering the metabolic disorder.

The direct consequence of the deficit of micronutrients (vitamin B6, zinc, manganese) over the long term is the development of **physical and mental symptoms**. The toxic intermediates that result from the inadequate biosynthesis of heme can also cause psychic disorders (mood swings, depression, schizophrenia, anxiety, restlessness, hyperactivity).

SYMPTOMS THAT ARE FREQUENTLY DIAGNOSED IN HPU PATIENTS:

- White spots in the fingernails
- Stretch marks (striae gravidarum)
- Poor dream recall
- Skin pallor (primarily in the face)
- Knee and articular complaints
- Impaired muscle formation
- Anxiety, mood swings, depression, bipolar psychoses, schizophrenic psychoses, autism, panic attacks
- ADS/ADHS
- Stress intolerance
- Allergies
- Food intolerances/gastrointestinal disorders

- Morning nausea/morning sickness
- Sensitivity to light, odours, and noise
- Hypoglycemia / glucose intolerance, type-2 diabetes
- Migraine
- Menstrual complaints/anomalies, PMS, infertility
- Hyperthyroidism, hypothyroidism
- Autoimmune diseases, in particular Hashimoto's thyroiditis and primary biliary cirrhosis (PBC)
- Mitochondriopathies
- Anemia, eosinophilia
- Addiction disorders

DEFICIT OF HEME

Heme plays a central role in energy metabolism (cytochrome C of the respiratory chain) and is required by an entire family of detoxification enzymes. It is also essential for antioxidative defence mechanisms and the required detoxification enzymes.

HEAVY-METAL EXPOSURE AND HPU: AN OMINOUS COMBINATION

Heavy metals and HPU combine to block the detoxification process. At the same time, HPU promotes the accumulation of heavy metals and other substances that must be detoxified.

Heavy metals are known to be the cause of gene and enzyme defects and can hence be involved in the emergence of HPU. Vice versa, HPU promotes the accumulation of heavy metals and other toxic substances by impairing the organism's detoxification capacity. In practice, a thorough diagnosis of the symptoms is of essential importance, followed by therapy with the lacking micronutrients.

HPU TEST®

The historically older cryptopyrrol test, which is still offered by most laboratories worldwide, is capable of detecting various pyrrol compounds in the urine following the taking of certain pharmaceutical drugs or else resulting from toxic stress. This makes this test less suited for the detection of the metabolic disorder than the far more specific HPU Test®, which has been available since the year 2000 and specifically measures HPL complexes, which are formed only and exclusively in connection with HPU.

A further advantage of this novel test method is that it is also capable of detecting HPL complexes in patients with nocturnal excretion patterns by means of the 24-hour urine. In these patients, due to the existing deficit of micronutrients, the uptake of the small amounts of zinc and vitamin B6 ingested with the warm main meal of the day results in a brief excretion of the HPL complexes, approximately two hours after the meal. In adults and in chronically ill children, it is advisable to use the 24-hour HPU Test®. In smaller children who are not chronically ill, it suffices to perform the test in the morning urine. In Germany the HPU Test is available from the company Heidelberger Chlorella GmbH (www.heidelberger-chlorella.de, phone +49(0)6224-92700).

THERAPY OF HPU AND ENHANCEMENT OF THE DETOXIFICATION CAPACITY

The lacking micronutrients should be substituted, with particular focus on the active form of vitamin B6 (P5P) in an adult daily dose of 50 mg plus zinc, and manganese if this is also deficient. Practical experience repeatedly shows how important it is to use **active vitamin B6** and not its inactive form. The other B-group vitamins should be supplemented as well, as should also other deficient micronutrients: HPU patients frequently have deficits of several micronutrients. Other detoxifying measures – for example chlorella – are a further important option.

HPU THERAPY IS OFTEN AN IMPORTANT STEP ALONG THE PATH TO HEALTH

We have already helped many people, mainly women, by giving HPU therapy. Time and time again we have seen that the treatment with micronutrients alone is capable of solving many health problems and enhancing patients' wellbeing in many different ways and for many different symptoms, with a positive effect on psychic health disorders, problems specific to women, and chronic illnesses alike. The diagnosis of HPU is thus in many cases a first and decisive step along the path to health.

If you would like to learn more about his interesting field of health, Liutgard Baumeister-Jesch MD and Tina Maria Ritter PhD and Natural Health Professional hold special HPU seminars. For details please go to **www.biophysiologie.de**.

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