

## Urine Pyrroles Revisited

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The authors have previously discussed urine pyrroles as a diagnostic aid in health and disease.<sup>1,2</sup> Dr. Hugh Riordan has been using urine pyrrole results as a diagnostic aid in his practice for over 25 years.

Urine pyrroles, depending on the article you read, has several names; mauve factor, kryptopyrrole, hemopyrrole, indole, and hydroxyhemopyrrolenone.<sup>3</sup> The origin of pyrroles is also confusing. They were first described in the urine of patients undergoing experimental LSD psychosis and in the urine of patients with various mental illness, including 60 percent of chronic schizophrenic patients (see Editorial, this issue). Urine pyrroles were said to come from amino sugars and the metabolism of N-acetylneurominic acid in the central nervous system, an abnormal side product in the synthesis of porphyrins, bile pigment, or an oxidation product of hemopyrrole and/or bilirubin.<sup>4</sup> Given all this confusion, what is the clinical value of pyrroles as a diagnostic aid? How pyrroles are produced and appear in the urine is still unclear. Dr. Pfeiffer reported that pyrroles combined chemically with vitamin B<sub>6</sub> to remove it from the body in a way similar to penicillamine and inositol hexaniacinate (INH). He treated schizophrenics with large doses of vitamin B<sub>6</sub> and zinc and observed significant improvement in their conditions. This treatment has been duplicated in many other studies with equally positive results.

At The Center, we feel that the data tend to support a theory that many different types of physiological and/or psychological stress, other than schizophrenia,

may cause the excretion of a large amount of pyrroles in the urine.

Since one of the theories of elevated pyrroles is thought to be related to abnormal bile metabolism, we reviewed over 200 patient records with elevated or normal urine pyrroles. The urine urobilinogen was normal in all patients according to the urine dipstick results.<sup>5</sup> Therefore, the theory that urine urobilinogen could affect urine pyrroles does not appear to be valid. These patients had urine pyrroles with a range of 20 to 234 ng/dL and a mean of 53.5 ng/dL (normal < 20 ng/dL).

Another concern expressed by some health care workers is the effect of urine specific gravity on pyrroles. That is, the more dilute the urine (lower specific gravity), the lower the pyrroles, and vice versa. We reviewed the urine specific gravity of over 100 patients and the data are shown in Table 1, (p. 48).

The data show that both normal and abnormal pyrroles occur in both very dilute and very concentrated urine. The protocol for measuring urine pyrroles is to place immediately the fresh urine sample in a tube containing 500 mg vitamin C as a preservative. This procedure preserves the urine pyrroles and stabilizes the specific gravity to about 1.027 in all urine specimens.

The BioCenter Laboratory, a CLIA approved reference laboratory and a unit of The Center, serves as a reference laboratory for many physicians and other reference laboratories across the United States, and probably has more experience in performing urine pyrrole tests than any other facility. One of the authors, Sharon Neathery, has been performing this test for over 25 years. The BioCenter Laboratory has also participated in several national studies on autistic children by performing urine pyrrole tests.

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Table 1. Comparison of Urine Specific Gravity and Urine Pyrroles

Urine Specific Gravity	Normal Urine Pyrroles	Elevated Urine Pyrroles
1.000 to 1.010	43	25
1.011 to 1.020	39	47
1.021 to 1.030	17	27
1.021 to 1.035	1	1
<b>Total</b>	<b>100</b>	<b>100</b>

Physicians at The Center continue to use urine pyrrole and blood histamine levels to help confirm or rule out patients with severe psychological or physiological stress. We find it a very useful diagnostic aid in patients with symptoms relating to these diseases.

#### References

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