Acupuncture & Natural Health Solutions

Functional Medicine Summer Series #9

Comprehensive Metabolic Panel

BUN, creatinine and eGFR are three kidney biomarkers

Hello to those who know "qi" isn't just a Scrabble word!

Welcome back to the next edition of the summer functional medicine blood analysis series. I hope you all had a lovely Labor Day weekend and either relaxed or did something fun, or maybe a little bit of both.

Today, we are continuing to look at the Comprehensive Metabolic Panel, specifically the BUN aka Urea biomarker, the creatinine biomarker and the eGFR biomarker.

The blood urea nitrogen (BUN) is a waste product in the blood that comes from the breakdown of the protein that we eat. Urea is formed in the liver and excreted by the kidneys. Undigested protein anywhere in the body is an issue. It can leak out of the tight junctions of the digestive tract into the blood. This is known as leaky gut. If the protein is not being properly broken down, the kidneys become stressed.

The BUN/Urea level depends on the amount of protein you are eating in your diet, as well as liver and kidney function. We usually look at the BUN along with two other biomarkers, creatinine and eGFR.

Low BUN levels are linked to not eating enough protein, overall malnutrition, drinking too much water, and/or liver failure. High BUN levels are related to kidney failure, bleeding in the digestive tract, eating too much protein, pancreatitis, and/or heart attack.

BUN Standard Lab Range: 7.00 – 25.00 mg/dL
The Optimal BUN Range: 10.00 – 18.00 mg/dL.

High BUN levels suggest that the kidneys need support. It is important to rule out dehydration before jumping to any conclusions. It still surprises me how many people do not drink water. This is a marker of dysfunction that we need to address if it is out of range. It can be indicative of some sort of heart issue, but it definitely tells us that there is an integrity issue with all the blood vessels of the body.

When BUN is low we have to think about the liver. Looking at other numbers on the labs will indicate how much the liver is struggling and how we need to intervene to support the liver function.

The next value we are discussing today is creatinine. Creatinine is a byproduct of muscle metabolism and serves as a vital biomarker of kidney health. Produced as a result of creatine and creatine phosphate metabolism, its level in the body typically reflects muscle mass.

The kidneys are responsible for the excretion of creatinine. Thus, high creatinine levels may indicate kidney dysfunction, dehydration, muscle injury, excessive exercise, certain medical conditions and/or the use of certain medications.

Conversely, low creatinine levels can be suggestive of reduced muscle mass, severe debilitation, muscular dystrophies, and an increased risk of developing type 2 diabetes. Therefore, monitoring creatinine levels is crucial for assessing kidney function and overall health. During menopause and periods of hormone instability, the creatinine can go lower.

Standard Lab Creatinine Range: 0.40 – 1.50 mg/dL
The Optimal Creatinine Range: Women 0.50 – 1.10 mg/dL
The Optimal Creatinine Range: Men 0.6 -1.6 mg/dL

The final biomarker we will discuss today is the eGFR. The estimated glomerular filtration rate (eGFR) is a measure of kidney function. The eGFR indicates how well the kidneys can filter out creatinine, a byproduct of muscle metabolism, that we spoke about above. The eGFR is commonly calculated using variables such as age, gender, and creatinine levels, and provides crucial insights into kidney health.

A decreasing eGFR can indicate compromised kidney function due to factors such as dehydration, kidney disease, diabetic kidney disease, cirrhosis, congestive heart failure, shock, and aging. eGFR less than 60 for three months or longer indicates the kidneys are not functioning properly, and this needs to be addressed immediately. Conversely, an increased eGFR may occur with pregnancy, physical exercise, and high cardiac output conditions.

Regular monitoring of eGFR is critical, especially in people with potential kidney complications, including those using drugs that are toxic to the kidneys or patients with diabetes.

Standard Lab eGFR Range: 60.00 – 160.00 mL/min/1.73m2.
The Optimal eGFR Range: 90.00 – 120.00 mL/min/1.73m2.

Looking at these three biomarkers together tells us how well your kidneys are functioning. If these values are out of range, I recommend scheduling an appointment, and we can discuss this in more detail. Good kidney function is crucial for optimal health. Catching declining kidney function before it becomes blatant kidney disease is a smart strategy.

For those of you doing acupuncture, we are coming up on the transition into the fall season. These next few weeks are a great time to come in for a seasonal tune-up and to boost the Lung and Large Intestine meridians that are most active during the fall season. This is especially important for those of you who wind up ill with bronchitis or pneumonia every fall.

Tune in next time for the globulin and albumin biomarker discussion. Until then, take care and stay healthy.

Want more natural health insights? Listen to my podcast where I discuss lesser-known approaches to chronic health issues. Listen Now

Supporting your health journey,

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