Blood Chemistry Intro: Fluids and Electrolytes

Transcript

Welcome to our talk on blood chemistry, fluids, and electrolytes. We'll look at the markers in the standard blood chemistry that relate to the levels of fluids and the levels of electrolytes and maintaining that fluid-electrolyte balance in the blood and in the rest of the body. Before we begin, we'll make sure that you know not to let people think this is going to replace a medical doctor, that you're just an advisor, you're going to help them by understanding their blood work so that if they are under the care of a doctor, they can work better in conjunction with that doctor and you can apply nutrition and lifestyle changes to bring balance.

Let's talk about the part of the blood test that are related to fluids and electrolytes, and these shouldn't be a surprise. Sodium, and that's one of the major salts of the body, it's important to maintain the fluid and electrolyte balance and the electrical activity of nerves and muscles. Sodium and potassium work together, there's a sodium and potassium pump on the cell membranes to help keep the signals balanced from one side to the other and keep the fluids and electrolytes balanced from one side to the other.

Chlorides, similar to sodium, helps maintain fluid and electrolyte balance. Potassium also works with nerves and muscles, somewhat like magnesium, but magnesium isn't considered an electrolyte, and then carbon dioxide, also called bicarbonate. We're basically measuring the level of bicarbonate in the blood, and it's usually ordered as part of an electrolyte panel. It's usually part of the standard blood chem panel. It could help detect electrolyte balance but mainly I use it as an indicator of acid-alkaline balance.

Let's take a little bit of a closer look. Let's start with the acid-alkaline balance. One of the ways to measure acid-alkaline balance is to look at the pH strips, so you can look at, have a person do pH strips in the morning, when they first get up or throughout the day and measure their urine and their saliva pH. And that gives us a fairly good measure. You can also do a blood test for the actual pH. That's only done in research settings, it's a very expensive test to do.

But just to give you a little summary of what we mean by acid-alkaline balance. Alkaline is on the high end, the numbers are on the high end, acid is on the low end. Seven is in the middle as a neutral. Water is considered neutral, H20. So it's basically the hydrogen potential of a a particular substance. So seven is neutral, your body maintains the blood in a little alkaline, like 7.35, 7.45, somewhere in that range.

It's very very tightly controlled. If it goes out of that range, we can get into metabolic alkalosis, metabolic acidosis, and those are dangerous situations, life threatening situations. So your body maintains this level at all costs. We can't measure the blood directly unless you're in a research setting with those kind of lab techniques, very rarely done. But we can measure the urine pH and the salive pH to get a sense of what our tissues are maintaining. Your tissues are going to work best in an alkaline environment. The healing happens. Cancer doesn't really grow well in an alkaline environment but it thrives in an acidic environment.

What are some others ways that we can kind of guess at if you will or make assumptions about based on the blood? Well in an acidosis situation, you're going to see high chloride, high potassium, and high carbon dioxide. All of that's going to be high. In an alkalosis state, you're going to see low chloride, low potassium, and low carbon dioxide. But here's the rub. Sometimes you get a mixture of them and you have to kind of figure out which way that person's going. It's really clear cut if they're all positive or all negative, but if they are varied, say you have a high carbon dioxide but you have a low potassium. That's probably still an acidosis situation, okay, but again, it's probable. This just gives you a general idea of how acid or alkaline a person is an how strongly you want to push them moving more towards an alkaline diet, a plant-based, green, strong diet.

Next we have, how do these electrolytes tell us about the adrenals? Again, the best test for the adrenals would be an adrenal stress test where you do 4-point saliva, but if you look at the general lab test, which you have, this is stuff that most doctors aren't going to know, that you can look at and just say, "Oh yeah, the adrenals might be stressed." So in adrenal fatigue, you're going to see high potassium, low sodium, low chloride, and even low glucose. Not all of them might be there, you might have a perfectly normal glucose. You might have a perfectly normal chloride, but the sodium and potassium or sodium and chloride are in the right position, then it's likely more than adrenal fatigue. Of course we have people who are in the middle, they're tired and wired, they have some of the hyper function going on and some of the low, and that's where you get skewed. So potassium is low and sodium, chloride, glucose, and triglycerides are often high when there's an adrenal hyper function.

So these are kind of just, they're not things that are absolute, but it's when you're starting to look at somebody's test and go, "Oh look at that, they have a high sodium, they have a low potassium, I wonder if they've got some adrenal stuff going on," and it gives you the flag to investigate further.

We've talked about this a lot, what do you do for adrenal fatigue. Stress management is super important, a high green diet is super important, Vitamin C rich foods and supplements are greatly important, activated forms of B vitamins, especially B5 and B6, antioxidant support, adaptogenic herbs, and zinc.

The purpose of this talk is not to teach you how to address these situations but I can't help myself but throw some of these things in, because I want us to be constantly learning, but it's more for how do we assess. This is an assessment piece.

Let's look at this case study, and again, don't cheat and look at the next one on your slide. We're looking at this person again, we're doing this in a vacuum, we don't have a history, we'd always have a history on somebody, nobody's going to hand you a bunch of labs and say test these, although that's how they do all of the medical school testing is like, oh here's an x-ray, here's a lab, what is going on with this person, I'm like, well I want to know this, I want to know that, I want to do a history.

In this person, we have high sodium, high potassium, normal chloride, low carbon dioxide, and normal calcium and phosphorus. So what are we thinking here? What are we thinking might be going on? Is this person alkaline or acid, is there some adrenal stuff going on? So we have high sodium and low potassium, that's seen in hyperactive adrenal, so we were starting to go, okay, there may be an adrenal problem here. Let's investigate further. The low carbon dioxide is seen in metabolic acidosis, so we're wondering okay, maybe we want to do some pH testing, maybe we want to look at their diet to see if they've got the very acid foods or very alkaline foods in their diet. How do we alkalize them? Maybe they're under a lot of stress, they've got adrenals indicators and the acidosis indicators, so maybe they're under a lot of stress. That makes sense, right, because that causes a lot of oxidated stress.

You do the adrenal stress test, you start to get them on an alkaline diet and fresh whole foods and vegetables. When you do this, you're not talking in a vacuum, you can say to somebody, look, there's some science here that your adrenals might be stressed, and that's this and this. There's some science here that your body's in a more acid state and disease happens in an acid state, we want to get you in an alkaline state. So let's do some further testing and let's get you started on this particular diet. And that's the story with fluids and electrolytes.