

## INT. KIDNEY DIALYSIS WARD - DAY

*MATTIE, an African American woman in her 60s is sitting in a chair receiving hemodialysis. Next to her, Dr. D is assisting another patient with his back to us.*

*PAM enters.*

PAM:

Hi Mattie! My name is PAM, I'm your Patient Advocate Manager.

MATTIE:

Well hello Pam! Am I ever glad you're here. I have a lot of questions for Dr. Dialysis about my anemia treatment.

*DR. DIALYSIS turns from the patient he was treating to reveal his face as he approaches MATTIE*

PAM:

Here's the Doctor now. Hello Dr. Dialysis.

DR. DIALYSIS:

Hi PAM. Hello Mattie, how are you feeling today?

MATTIE:

Well Doctor, actually I am a little worried. I have a lot of questions for you about my anemia.

DR. DIALYSIS:

*(laughs lightly)* Well, Mattie, that's why Pam and I are here today. There's no need to worry. We'll walk you through everything.

PAM:

Why don't we start by explaining exactly what anemia is.

DR. DIALYSIS:

Wonderful idea, Pam.

First, anemia means that person has a lower than normal amount of red blood cells in their blood. A simple blood test called the hemoglobin level is the best way to determine if a person has anemia. Many patients do not have any symptoms associated with their anemia. Those that do often report general tiredness and low energy levels. Some patients can become noticeably short of breath when they exert themselves.

PAM:

Hemoglobin is the molecule in red blood cells that carries and delivers oxygen everywhere in the body right Dr. Dialysis?

DR. DIALYSIS:

Exactly, Pam. I often describe red blood cells as being like a long train with many cars, with each car representing a hemoglobin molecule. The train travels to the lungs where oxygen is loaded into the cars. Then, the train travels throughout the circulatory system. As it does so, it unloads the oxygen to cells that need it.

PAM:

And these little trains don't run for very long. Red blood cells survive, on average, for only one hundred and twenty days. Deep inside your bones, in your bone marrow, new red blood cells are constantly being made and filled with hemoglobin.

MATTIE:

What does this have to do with my kidneys though?

DR. DIALYSIS:

You see, Mattie, the kidneys do more than just clean your blood. They also make two very important hormones: activated Vitamin D, which is critically important in maintaining healthy bones, and erythropoietin, or EPO for short, the other hormone made in the kidney that plays a key role in preventing anemia. EPO produced in the kidneys travels to the bones and tells your bone marrow to make new red blood cells.

PAM:

You see, Mattie, hormones are chemicals made by one organ which then travel to other organs in order to deliver their messages. Your kidneys have sensors that monitor your hemoglobin levels and figure out how much of the hormone EPO to release to keep those levels normal.

MATTIE:

So, when the kidneys are weak, they can't make enough EPO and my bone marrow doesn't get the message to make more red blood cells?

DR. DIALYSIS:

Exactly, Mattie. And this is why many patients on dialysis, as well as many patients with chronic kidney disease, can develop anemia and can benefit from receiving EPO.

MATTIE:

Aside from the EPO shots, I also get iron injections to help treat my anemia, right?

PAM:

That's right, Mattie. Iron is one of the main components of hemoglobin. Without enough iron, your body can't make enough red blood cells and you can become anemic. The most common way to become anemic is through bleeding. Bleeding can deplete the body of both red blood cells and iron. A real double whammy!

DR. DIALYSIS:

Pam. Imagine: inside your bones, there is a giant factory where red blood cells are manufactured. The speed of the conveyor belt is managed by EPO. But the raw materials to make those red blood cells - well, that's iron.

PAM:

And the truth is, hemodialysis patients lose a little bit of blood with each treatment.

DR. DIALYSIS:

That's right Pam. Additionally, taking iron supplements orally doesn't always work. This is why we often prescribe intravenous iron for most hemodialysis patients.

MATTIE:

Here's another question for you Doctor: Every two weeks the dialysis center gives me lab results. I noticed my hemoglobin levels never match the normal range listed on the print out from the lab. Why is that?

DR. DIALYSIS:

That's very observant, Mattie. You see, over the years, research has taught us that maintaining hemoglobin in a targeted range lower than what is considered "normal" is best for our patients on dialysis and also for those patients with chronic kidney disease who are not yet on dialysis. Clinical studies have consistently shown that patients who receive increased doses of EPO and iron to truly "normalize" the body's iron levels may be at risk for developing complications such as blood clots, stroke and heart attacks.

MATTIE:

Wow, you read my mind Doc. I was just about to ask about risks of side effects with these medications.

DR. DIALYSIS:

Well, Mattie, as with any medication there is always a risk of an allergic reaction. However, it turns out that the EPO and IV iron products that we use nowadays have an exceptionally low risk of causing an allergic reaction. On the other hand, as I mentioned previously, there are risks of pushing the hemoglobin levels too high. The targeted goal to achieve maximum benefits and minimal risks is to use EPO and iron to maintain hemoglobin in the 9 to 11 range. This is the reason we continuously monitor hemoglobin levels and adjust the dosing of the EPO and iron.

MATTIE:

That answers a lot of my questions. I sure feel better knowing more about how my anemia is being treated.

PAM:

That's why we're here, Mattie!

DR. DIALYSIS:

Glad we could help, Mattie. Now, it says here you have some questions about how we protect your bones. That's a complicated story and not only involves the other hormone made by the kidney, activated vitamin D, but also involves multiple other inter-related variables, so let's schedule another visit to talk about that.