

Clinical Expertise: How did he do that?

Once upon a time in a busy Emergency department

The characters: Dr. Shepherd (ED), Dr. Grey (Cardiology) calls Dr. House (Dr. House)

Dr. Shepherd: Hey Meredith, sorry I paged you 911. Are you in the hospital? We need you your help in the ED. We have a 3-day old baby with V Tach.

Dr. Grey: V Tach!! How is the baby doing? I was just at the Starbucks across the street. I am running to the ED right now.

Dr. Shepherd: He is tachycardic at 160 but I still feel good pulses and BP is still ok. He is cool and mottled on the feet. EKG showed wide complex QRS.

Dr. Grey rushed into the ED

Dr. Grey: How is everything (panting)?

Dr. Shepherd: Oh, thanks for coming in so fast. He is ok now but I thought he was about to arrest so I pushed some fluid and sodium bicarbonate. His color and perfusion are much better now. And I think...he is back to sinus rhythm. I wonder if he has some kind of congenital heart defect but I could not hear any heart murmur.

Dr. Grey: Hmm...A 3-day old baby with V Tach is kind of unusual and he looks better now. This does not smell like congenital heart defect to me. Let's admit him to the PICU and we will figure it out.

Dr. Grey calls Dr. House, a PICU attending.

Dr. House: Hey Meredith, What's going on?

Dr. Grey: Dr. House, I just want to tell you about the baby I am admitting to the PICU.

Dr. House: Yeah, I heard about the 3-day old baby with V Tach. That is odd.

Dr. Grey: Yes, I got paged 911 to the ED so I rushed to the hospital. So this baby was brought to the ED with lethargy, toxic appearance, mottled skin and signs of compensated shock. An EKG showed VT and got better with fluid and bicarb. I do not think this is congenital heart defect but I am coming up with an ECHO machine for a quick exam to make sure that there is nothing cardiac.

Dr. House: Well, that is interesting. Did they check potassium? It might be hyper K.

Dr. Grey: Umm, let me see (checking the computer). I bet ED has already sent come basic labs.

Dr. House: Life is good, otherwise?

Dr. Grey: Yeah, pretty good. Oh my!!...K is 8.3!!!

Later, repeated laboratory test also reveal hyperkalemia ($K = 7.9 \text{ mmol/L}$), metabolic acidosis ($\text{HCO}_3 = 17 \text{ mmol/L}$), and hypoglycemia (glucose = 16). The patient is treated for sepsis awaiting metabolic work-up for inborn error of metabolism. Subsequently, the newborn screening yield profile that is consistent with medium-chain acyl-CoA dehydrogenase deficiency.