

[MUSIC PLAYING]

RAMON

You will realize, when you talk so much of alcohol relapse, et cetera, that we need hepatologist and surgeon

BATALLER:

working together. I am so proud that we are working more and more as a family, and as a-- because the patient need both of us. I have been devoted 19 years of my life to these patients. My clinic is mostly in these patients.

And when I give talks, even in Russia, there are none-- well, one talk on alcohol-- typically none. To have two talks on alcohol is typical in a short day. That is one of the first times I faced that. But when you see the numbers-- that the number one cause of liver transplant is alcohol, 80% of our inpatients are alcoholics-- makes sense to deal with this topic because this is a modern hepatology.

I will go through the assessment of alcohol relapse and the risk of a relapse, but I will try to give you personal advice in patients that I have seen recently, some examples, because otherwise, there is [INAUDIBLE] that tomorrow you probably completely forget. So I will quickly go how important is alcohol, because I think Shahin has shown that very clearly, and I think you now know that alcohol is the main cause of liver related mortality in America. One thing I have to say, though-- typically in academia, when we show graphs, we isolate one cause. Either you're alcohol, or you have [INAUDIBLE], or you have Hepatitis C.

In real life, things come together often. For example, alcohol and non alcohol comes often, and the name doesn't work. Doesn't help to have A and non-A as a-- you either have one or the other. There is some trend now to call [INAUDIBLE], the dual, to this duality, for example.

So alcohol is a co-factor in many, many diseases. You have Hepatitis C still as for alcohol. And I will diagnose in alcohol use disorder, on the reporting, make the patient reveal that they are drinkers is the first step, and I would say half percent of the patients in my clinics, all the notes say, no alcohol, no alcohol, no alcohol, even when [INAUDIBLE], no alcohol, no alcohol. And almost, I feel my profession is to be a CSI guy revealing alcohol, and I will show you some tricks. I will give you one example this week, because if you start not diagnosing new disease, how can you treat something that you're ignoring.

So this is one of the studies we published very recently. Alcohol is a bad business. And I love the number-- [INAUDIBLE], you have to give me your slides because it's fantastic. So alcohol, the money is placed to cause the disease, not to cure it.

Look at the cost of alcohol in America, compared to hepatitis C. Why we do, for example, early universal detection of hepatitis c. Of course, I'm very happy to have good therapies. It's fantastic. Because it's a lot of business. The business in alcohol is not to detect the disease. We still are struggling to have the counselor to your left. So this is still the money put in the wrong place as a medical doctor. That is important.

A lot of people say alcohol and NAFLD, they are cousins, they are brothers, they're the same. Yeah, because when you do a biopsy, they have similar things. There are a couple of differences. Number one, alcohol-- fibrosis much quicker than NAFLD. Thank god. Because if 30% of Americans have NAFLD, we would need three hospitals just for hepatology, OK?

But alcohol fibrosis-- quicker than NAFLD. But also, alcohol has this syndrome called alcoholic hepatitis that's unique. You can eat as much. You remember the "Super Size Me" movie? The guy got sick, the liver was enlarged. He had to go [INAUDIBLE] into the hospital. But he was not yellow. So enough of the as much as you can eat will never develop this syndrome. This syndrome is unique.

But what happens in NAFLD and hepatitis C? We have a lot of clinics with early detection patients. We have a lot of clinics with silent hepatitis C, a silent NAFLD. We have detected NAFLD, but the patient is OK. How many patients I see in my clinic with early alcoholic liver disease? Never. I only see them when they're yellow.

[INAUDIBLE] see them early. And sometimes, I see them early because their ferritin is elevated. And is sent by his hemochromatologist. And they see the guy in the door. My god, hemochromatologist. And alcohol increases ferretin like crazy. It's almost a market of alcoholism ferritin.

So we don't have early addiction. And we recently-- last month we published a paper with it in all the world, even Kenya, Africa, Europe, China, India, Australia, Argentina. This is the percentage of the ratio between early detection that we see in our clinics versus ones we only see the patients late, when they're dying.

NAFLD, hepatitis B, c, et cetera, they are more seen early than late. Look at alcohol. 10 times. In my clinic, it's not 10. It's 100. I see one early. So we have to do early detection. And now with the fibroscan, we'll start some early detection programs at UPMC.

We think that 15% of people in rehab programs have silent cirrhosis. This could be a motivation to stop drinking. So what is the best therapy for any disease, or anything in life, probably? To treat the cause. What changed the [INAUDIBLE] story of hepatitis C, before the DAA, or interferon that-- nothing. There's a lot of studies in anti-fibrogenics will slow down the-- nothing works. Now we know what it works to treat the cause.

In alcohol, you can stop drinking overnight. You need 12 weeks to cure hepatitis C. You need 12 months, and you're likely to lose weight. But to stop drinking, unless you develop withdrawal, you cannot stop drinking overnight. So for us, the motivators to the patients to stop drinking is an expertise that we have to acquire now.

As you say very well, [INAUDIBLE], it's almost behavioral, the liver disease is mostly. Hepatitis C is less of a problem right now. People say, don't look even the genotype, because you cure all genotype, which is the [INAUDIBLE]

So you give a pill. Don't sell it, please. Take 12 weeks. It's over. NAFLD is much more challenging. But alcohol, if you don't detect it and you don't know how to convince the patient to stop drinking, you'll never cure the disease. Not pill will slow down the progression of liver disease due to alcohol if you continue drinking. No? OK.

So there is some studies. This is some study of 10 years follow-up of abstainers and non-abstainers. Honestly, when you're detected late, even if you stop, you die, OK? But you die less if you stop drinking.

This is another study we did of 15 years follow-up after [INAUDIBLE], and is even the abstainers drink less. I learned two things from this study that we did, and I told a patient yesterday. So it's the first thing that I told to a patient yesterday. I don't know-- [INAUDIBLE], you would know with me. But the patient overcame the alcohol hepatitis. He survived and is one year out. So he's still minimally yellow, but he says, it's over. I'm not alcoholic anymore. I'm not--

In this study we saw that the relapsers, 1/3 of them were five years later. The first thing that we learn-- never give up. Always think that you have an alcohol problem. Continue going to the counselor. Never think you're fully cured. If you have craving, you have to go through tough times, et cetera, come to us. Go to the counselor. Have someone.

The second thing that we knew-- initially, in this study, my initial plan was controlled drinkers or controlled, light drinkers, heavy drinkers, and abstainers, no? We put together the light drinkers and the heavy drinkers together, because they did the same in terms of outcome. Once you are very sick of the liver, any alcohol kills you.

It's the other thing, [INAUDIBLE]. So many of my patients when I see them, they tell me no, no, I'm abstinent. And they-- in their mind, they're abstinent because they're drinking much less, but they're still drinking. And some of the consequences are the disease never compensated. This ascites never goes away. The yellow, yes, the yellowness, yes, but not ascites.

When they are young, and they are still decompensated, and they claim, I'm not drinking, my first thing is, they're still drinking a little bit, OK? Remember that. This I told a patient and I learned from this study yesterday, OK?

So when we talk about precision medicine-- have you learned or heard? Precision medicine is very sexy now. Precision medicine, you go to the hospital. Institute for Precision Medicine is everything based in genes and things like that.

But I have to say two things about precision medicine in alcohol. What happened with this lady? The father was alcoholic, and the father committed suicide. 70% of my patients have first-degree history of alcoholism in the siblings, the fathers, and it's well-documented that alcoholism is a genetic disease.

That would mean morally, to me, if you have a predisposition genetic, and you have 10,000 advertisements showing that alcohol is so good, because the advertisement you know, in the TV look at Nike, performance, or success with women that jump on you, it's the opposite. My patients are frail-- as Dr. Dan and Dr. Andreas know very well-- and they're impotent, and they are socially isolated. So it's the opposite of this, OK? So we're giving misleading information to genetically predisposed people that drink and then say, you don't deserve a liver because you're a sinner. Hey, hey, hey, we're not here to judge. We're here to cure. Remember that.

OK, so precision medicine is to know why someone is drinking. Someone can be drinking because of anxiety, depression, PTSD because abuse. We've seen an increasing number of young ladies. I saw one Thursday. It's a HIPAA thing, but anyway, I don't reveal my [INAUDIBLE].

There is a subpopulation we're doing-- we're recording that for UNC-- of young ladies drinking, with bad partners, being abused, with PTSD, for example. If you don't treat the PTSD, how can you cure alcoholism? That is precision medicine, no? Or you're drinking because you cannot sleep, or you have pain, or you have depression. You have to treat the underlying cause.

I'm not an expert on this, although I am almost like an amateur psychologist because my family, my-- because I have been working with a counselor for 15 years, side-by-side, and they have taught me a lot. But we need to be amateur counselors, guys, you know, today. With 80% of our patients being alcoholic, you have to be better trained, no? I will say.

Anyway, so finally, there has been a study published this week online-- finally, in a study-- showing that early counseling saves lives in alcoholic hepatitis. One of the problems that I had when I went to authorities saying, we need a counselor, they say, Ramone, show me the data that by going to the counselor, you save lives. And I said there were not any studies. I was rejected that.

This is a study led by the Mayo Clinic. I sent them an email two days ago saying, I finally saw you. It changes the field. And Patrick [INAUDIBLE] immediately, they are very good friends, ah, it's so rewarding. They sent to all the authors, they used their data. They went, finally, this is the impact of going to a counselor in the first days after. I now have an evaluation for these patients went to counseling, these patients not.

So going to counseling is much more effective than cortisone. Remember the cortisone [INAUDIBLE]? Finally, it's an underpowered study, it's the first study, but can you imagine if we need to do it, these patients, early, in the 20s, the 30s? I have never seen so young people in my life here.

Shaheed was very afraid to lose the job. When my wife and I determined to move to America, I said, gosh, I'm an alcohol guy. No, not me, so I do alcohol. In America, nobody drinks, and they claim there is not a drinking problem. No, I am safe here.

In Europe, they're closing many liver centers and they are merging to GI because alcoholism in the Western countries-- the Western part, except for the UK-- is not so common. This heavy alcoholism, they have less [INAUDIBLE]. We are safe. So here, myself and Jay, no problem. We will have business for the rest of our career.

And in terms of drugs, I have to tell you that be careful to not-- only baclofen has been proven to be safe and effective. There is no studies in any other drug. I would say baclofen is one study is good. [INAUDIBLE] plus transplants. [INAUDIBLE]-- my experience, it is safe.

I cannot say it is effective because I am very critical with-- I think it's effective? I don't know. I gave it to 10 patients. Some of them stopped. I don't have the statistics myself. But the Zofran, be careful. Never give the Zofran if you have advanced fibrosis because you can cause acute liver failure and even kill the patient.

OK, so let's go to the liver [INAUDIBLE] for [INAUDIBLE]. Some of the slides, I will be quick because Shaheed very well reviewed this topic. This is the same as [INAUDIBLE] showed. This is alcohol going up and hepatitis C going down.

I will say that hepatitis C as a pure cause of liver disease, we have a few cases now in selection, while alcoholic liver disease and NAFLD are becoming, by far, the current diseases. And when we have any patient with alcoholic hepatitis, I call my wife and say, I will be late at home today, because the discussions are half an hour to one hour. So it is a huge discussion, as you know.

Two slides about the prevalence of ALD as a cause of being listed. This is in the UK. This is *The Lancet*. And I remember it too. The data, it was crazy. Look at the hepatitis C. It's now the fourth cause listed in the UK. Can you imagine?

By the way, I was yesterday, or the other day, with a Southampton [INAUDIBLE] to the final of European league soccer. I know you have soccer, but my goodness, the whole bar, I was walking the street, there were all British guys as drunk as you can be. There was nobody that was not drunk. This is such a culture of binge drinking in that culture. It's amazing.

And interestingly, America and UK are very restrictive in underage drinking. They have the most underage drinking in the world. So being restrictive, giving punishment, rules, it's not enough in life. There's something else. Regulation of arts, education, going more-- Not very often, but sometimes, we're starting to go to schools to high schools, et cetera, to talk early about alcohol.

And one of the questions I ask to the kids is, why do you want to be 21, to turn 21? And you're like, to drink. A six-year-old guy told me, I want to turn 21 to drink. Gosh, what an incentive could be for a child. And I learned, since I adopted my child, reverse psychology is the only psychology that works with children. When you say, this is impossible, they just are obsessed to do it. So I say, this is the best thing in life, they don't do it, OK?

So what about the alcohol liver disease and transplantation? Transplanted patient is not one-- I don't want to [INAUDIBLE] abdominal transplant occurs, a transplant is not useful. Please, for many, in this stage liver disease, transplant is useful. But, excuse me, we transform very few of the 14 million Americans with an alcoholic disorder, and with many of the Americans with earlier stages of liver disease, this solution of a huge problem is not to transplant 60 alcoholics per year. It's to try to avoid alcoholism and detect early alcoholic liver disease, then to stop the progression of the disease.

The outcomes of alcoholic cirrhosis have been always similar to NAFLD, hepatitis C, and a little worse than cholestatic liver disease. I have to say, though, that it's very interesting that the outcomes of NAFLD, they have-- quite good in the past, but the recent data, more recent data, they're not doing so well because we're transplanting more and more now NAFLD, obese, in the high 60s, with bad kidneys, bad heart.

This is also the two types of patients that we present today, these days, are alcoholic hepatitis and alcoholic liver disease, and NAFLD in the high 60s or mid 60s with bad kidneys, the heart which with stents and some calcification. This is our real life now in transplantation. That's why it's evolving so massively with the [INAUDIBLE] transplantation, OK? And this is the same outcomes in Europe that they are this in alcoholic liver disease.

What about the relapse? We tend to use, now, the word "recidivism" instead of "relapse," because "relapse" has a little negative meaning, OK? This is a nice study done here, a pioneering study and [INAUDIBLE] study done by Dr. DiMartini here in Pittsburgh.

You know, in the world of alcohol, I like local studies. Can you use a study done in Spain that we have the most-- my goodness, [INAUDIBLE] I'm from Spain. I'm more American now. But what a different society. We drink wine. We are always surrounded by family. We have less isolated people. Stigma is less is a problem in our society. Here, you're a loser, you're a super loser, this society, it is a little competitive society. There is more isolation of people here.

When I see alcoholics in Spain, I see mostly with other family members, here sometimes come in wheelchair, [INAUDIBLE], toxic neuropathy, and that's why I feel more useful here. Because my-- I'm kind of a sweet guy. So in Spain, when I was treating, they say, I don't need you to be sweet. In America, they hug me in two seconds, OK? Just HIPAA protector, in the sense that-- no, no. But they receive so well that you care about them.

So the first thing in the therapy of any alcoholic liver disease patient is that they sense that you care. I'm sorry, it's not a cheesy phrase. It's my experience. If they sense that you don't care, they immediately will never tell you that they have a liver disease. They will never tell you they drink, and you will never make a change in their lives. You have to be firm, be strong, but caring at the same time. And when I say that, it's because in general, this field, a lot of doctors don't feel comfy. [INAUDIBLE]. You'll be so rewarded when you change the life of these patients.

This is the pattern that Andrea DiMartini described-- different patterns of alcohol relapse after being transplanted. Some people start drinking early, and then the doctor says, hey, what the hell you're doing? And then they stop. Some patients do, like, 6% of the patients early, but then, later on, two years ago, when they start to have fibrosis, et cetera, they get a little more mature and-- OK? And some patients are late, which are the worst, OK? But remember that most of the patients do not relapse. Probably 1/3 of the patients relapse.

I would say-- yesterday, I think, I was showing my nurse-- to me, there are three types of relapses. The major relapse with noncompliance-- that you don't take the medications, you [INAUDIBLE] to your best, and you're a disaster. The second, the controlled relapse that doesn't affect your liver, and in the middle, OK? So typically, OK? I have one major relapse in my life-- what a disaster.

So because I devote my life to these patients doesn't mean that I'm not critical. And sometimes in the committee, [INAUDIBLE] it sometimes, OK? Because typically, you try to say, he's a nice guy, [INAUDIBLE]. We have to be a little critical, put some distance. That's why we have committees, because the decision cannot be made by the primary.

What is the consequences of drinking? Of course, if you drink heavily, the same way you eat heavily or you have a relapse of PFC, if the disease that caused you the cirrhosis relapses and goes by the cost, it will have consequences, of course.

I don't want to show you a lot of data. In some of the things, I show you one or two slides. This was a meta-analysis of seven studies, basically, that because of the steatosis in most of the patients, four times more alcoholic hepatitis in some patients. But the 10-year survival is affected in the heavy drinkers. And I will show you one data for there.

So the consequences is, obviously, that you progressive recede-- you decrease-- the survival in the heavy cases. But sometimes, it's poor adherence and compliance. The drinker is a patient that probably doesn't take the Prograf every day. So there is not only the cause of alcohol itself. It's the whole thing together, OK?

So how to predict relapse in ALD patients? There are many fewer-- there are many studies. In the transplant world, it's very difficult to have reproducible results because each study has so many different parameters and socioeconomical, different [INAUDIBLE]. And it's very difficult to have a meta-analysis of.

But I [INAUDIBLE] the slide-- there is one-- it's a little old, the slide, but it makes the results of 11 studies. And this is the one that predicted that the one [INAUDIBLE] the six months before abstinence predicted only in two of the nine studies. And a thing Shaheed said very well-- it's not the only rule.

But what is the reason to wait six months? To demonstrate that the person is capable to be sober? Of course. But the second reason is, many young people compensate the disease and get cured before a liver transplant needs to be done. So by doing too early in young people when they are not too sick, we can do unnecessary transplants.

I have seen miracles, especially in young people. They get yellow, malnourished. And in two months, he's another person. Oh, my gosh.

Be careful, the transition for ASH to NASH. They have a sweet addiction, sweet disorder, which I'm a sweet tooth, and thank god I'm not an colleague. But they change to-- they gain weight, like, massively because the center of sweet addiction is the same center of alcohol addiction, which is very interesting. In UNC, where I worked before, they don't have candies anymore in their rehab center because they lasted two hours every time they put candies. Everybody took the candies.

So all the things-- obviously, poly-substance abuse is very important. Cocaine, that sometimes we minimize here, is very important. I am amazed the amount of pot smokers in this city. Oh, my gosh. So I don't think the last patient that was not smoking pot when presented. It is incredible. It comes-- it's not clear what to do with these patients. We were discussing this Thursday. Cocaine is a different story.

But family story of alcoholism is a bad prognostic factor. Younger age, and I will show you on the slide, and we show the same-- younger age are the worst prognosis, especially these ladies with PTSD. They are the toughest. They go back immediately, OK?

And lack of insight. Lack of insight, I will show that is like younger age and lack of insight-- it's a subjective thing, no, lack of insight? That was the main discussion that we have two weeks ago with a patient. A patient that took three attendings, and two weeks, and being dying, and a biopsy, to finally admit he was drinking. That, to me, is a poor insight. You're in a hospital. He was denying alcoholism. And we had a huge discussion because it's a subjective thing.

I will show you now-- I'm almost finishing-- one slide. This is something that has been-- this is in the study that Shaheed showed in the American study of the predictors of relapse. In the multivariate analysis, younger age or lack of complete acceptance of the diagnosis were the independent predictors of relapse, and this was more powerful.

So they showed an alcoholic hepatitis, a lack of self-awareness, OK? I have three patients-- the patients that they tell you immediately that they're drinkers, the ones that they say is maybe [INAUDIBLE], and the one you take a little more time, finally, [INAUDIBLE] they accept, and the full deniers, OK? They're-- always try to do three categories.

This guy was a denier that took almost three weeks of being hospitalized and dying, literally, to accept, finally, that he was [INAUDIBLE]. This is not-- look at the data. Evidence-based, this patient has a high risk of relapse. So we-- I think we took the good decision.

OK, anyway, how to detect alcohol-- and this is my last part. It's three or four minutes. But I will give you some examples this week how I'm managing this.

So the first thing to detect alcohol intake, what it is? To ask the patient, and I will give you one trick. So whenever, as I told you many times, [INAUDIBLE] much less, but when they send you patients to the outpatient clinic, my goodness. Last week, I think we were making for like 80% were no alcohol, no alcohol, it made me suspect. And then, from outside the door, they say, my goodness, what the hell? This is an alcohol.

So the first thing, how did you know it's a [INAUDIBLE]? But I want to see how to reveal in the reporting. This is a practical slide. This is not evidence-based. This is not these graphs. This is years of experience.

Number one, you have to suspect it. And usually I suspect it because you have a stigmata in alcoholism. For example, men have renal. Ladies have more-- I don't want to look at you because some of you have a little reddish here. I don't think that you're alcoholic. But they have this stigmata of-- because it's more estrogenic. 80% or 90% of the ladies that drink have this reddish here, here. They have thin hair, and they sometimes have this look that I cannot describe. I will have to [INAUDIBLE] this contact, evasive, or maybe sometimes too much hugging me from the first second, or maybe too aggressive because they are guilty.

One of the patients two weeks ago, just somebody, they came, the wife that was in front of me was the patient. Wife. It was with ascites, with all the stigmata of alcoholism, and the patient was there. And I had to confront the wife, the husband there. The wife say, I think we have a family problem. The wife, no way, we don't want to [INAUDIBLE], OK, OK? But the wife was an alcoholic cirrhotic, this [INAUDIBLE]. In fact, I felt she needed to be hospitalized, OK?

So anyway so then build some trust. You cannot show up in the bed, standing outside, are you drinking? No. Full self-awareness, [INAUDIBLE] No. You have to start talking a little and to show respect, care, but also to show determination and strength, because they will be less likely to lie to you. Both things, start. If you have a very aggressive guy, you have to start being firm. You see a scary person, very sweet, you need to sometimes-- you have to have more care. So you have to feel that.

Then one thing that I don't have time to do today is the overshooting. The overshooting has two techniques. It's you drank-- the last thing was this morning or yesterday? No, it's four days ago. OK, thank you. So but if you ask have you ever drink at all? No. So you have to overshoot in a relaxed way.

In some patients, one patient that I saw last week, there was a chronic under-reporter, and I knew it because it was a genetic disorder. He has all the genetic testing, and the genetic trait was very weak, and I knew he was drinking. He was a very-- a professor, very manipulative, a socially awkward person, et cetera. He knew all the literature.

I didn't ask for alcohol initially. I started to talk about the liver, the Lasix, and at the end, when we were very relaxed, looking at the ceiling, without making a big fuss, I asked for, hey, but you decreased your drinking, no? And it's like, well, of course I decreased. He started to admit it without realizing.

But when he started to admit it, I didn't make a big fuss. Oh, yeah, yeah, alcohol is good. And then without realizing, he was telling me, I'm an alcoholic. But that was the technique that I used. Sorry that I'm talking. But this is something that can be useful for you, OK?

OK, so biomarkers, just the last two slides. The best-- the typical biomarker is alcohol in the blood or on the breath. It's one day, and savvy alcoholics, they don't drink the last day. You know when you have a visit. So minimally, you have to be really, really [INAUDIBLE] to drink the last morning.

The worst case in my life was I show up to the office. Two of the other doctors said, Ramon, you smell alcohol? The guy was so drunk that I was smelling alcohol. I said, really? And I was smelling alcohol, how drunk he was. He was my-- but typically, alcohol in blood has one advantage. The nurse takes the blood and directly from the patient, and the patient cannot his urine [INAUDIBLE]. But it's 20 to 24 hours. Remember that.

Then the breath we will use. And Andrea Martini is doing it on a study that I think very interesting with a sensor. But obviously, it's expensive, and is it cost-efficient? We have to still to demonstrate that it's good.

But the other thing that I want is in the urine, and the urine tests. The urine, we are doing more ETC and ETS in the urine. It captures-- these urine tests captures three to five days. It's almost like a glycosylated hemoglobin for the drinking.

So if you're not very savvy, or you develop withdrawal, you're very [INAUDIBLE] with alcohol, you're gonna to stop three or five days, you start shaking. You've captured a lot. The last [INAUDIBLE] that we did, I saw him two weeks ago. He promised me-- he told me, no, I'm just one or two times per month. I cannot help it, and I drink a little bit, OK?

He is finally in counseling, but the urine tests became, like, crazily up. So it's not one or two days [INAUDIBLE]. He drank the last three or three days, and the numbers were very up. The numbers are normal, still, of the liver, but I hope he is the first patient of DiMartini that it will be stopped. But he's drinking early after transplant This is the truth.

He's doing fantastic. He's working, and he was dying, so it's good in many ways, but he's drinking. So urine, we're doing more and more. But what happens? Last week, this patient that I told you, that he's under-reported, I asked the nurses, can you make sure that the urine, he goes himself with the empty, empty pockets, et cetera, and you check the temperature? And then the nurse said I'm sorry, I tried to be. But when I was knocking at the door, the girlfriend was inside of the toilet peeing with him-- just in a medical way, OK?

So we did tests, and we are waiting for the test for the women hormones, et cetera, in the urine. That is a super red flag. He claimed that he was too weak to walk. Please, he was walking normally. So urine test, that is-- that's that problem. And I feel one of the needs in our clinic as we are progressing, see more alcoholics, is to have a system like LabQuest to do well, OK?

And finally is the CDT. CDT, this is a [INAUDIBLE]. It captures one week. And this is my last comment. I saw a lady this week that had stopped drinking, theoretically, and [INAUDIBLE]. Hep. Has 30 years old. The liver function regained. The ascites is still there. It's going, and a little-- it gets better, it gets worse, it gets better, it gets worse. And my number one concern is drinking.

GDT Is 350. I call her again. She still denies she's drinking. I am ordering CDT because it's always negative in urine, because she knows that. But I'm trying to capture the alcoholics through blood, because I don't want to take to tips someone who is drinking, OK?

So this is, a little, the use. The alcohol in blood, I use it, but we're using more and more urine. But be careful, because the urine has to be collected in a strict way. Otherwise, it's misleading, OK? And finally, this a [INAUDIBLE] that I took that is causing me a lot of something. And thank you, for your attention.

[APPLAUSE]

