So you might be wondering how to actually initiate DTE therapy on your patients. You've decided that monotherapy with LT4 is not sufficient for your patient. You want to get that patient feeling better and to tell you they feel better. And so you made the choice.

And one thing I didn't mention, prior to that, lots of studies have shown with DTE, there's one other thing besides feeling better. They tend to lose more weight than people were put on levothyroxine monotherapy or even liotrix. For some reason, people lose weight. And I mentioned that a study earlier done at Walter Reed and actually patients lost an average of 4 pounds extra.

So anyway, what I want to mention, how do we do that? You've made the decision and you've got various options. The three most common options that are out there, the first one, of course, has been Armour. That's been around for a long time and the first-- the granddaddy of all the DTEs.

They're all porcine derived. So it's pig derived. So there is some question about antibodies, like we did with the old pork and beef insulin. I did that, too, in the old days. So there is some concerns about that. I've not seen a huge thing that there is some after time it doesn't work as well. I've not quite seen that. I've had patients on the thyroid I've seen for many years who I acquired have been on it for a long, long time.

So there's Armour. I think in 2009, there was Nature Thyroid came. So that was something I used a bit a little bit later. We have thyroid tablets USP or what we call NP Thyroid is there. Now the one thing to tell you that they're all the same. There was a concern for a long time that Armour and certainly a lot of levothyroxine products had gluten in the coatings. And we'll see that also with supplements and things that are out there.

This is important because, many of you may not realize it, but I'm going to tell you right now is that people with hypothyroidism, Hashimoto's, there is a high concomitants with celiac disease. It may not be full of celiac, but there is an increased celiac sensitivity to these patients that can lead to gut inflammation and a lot of issues can lead to inflammation. So there is a concern with patients with hypothyroidism taking a drug that has gluten. That's not a problem anymore.

None of the DTEs out there, those three, have it. The one thing to understand is that they have the same equivalencies. For the most common dose out there is 60 milligrams. That's like one grain. And that's going to be 38 micrograms of T4 and 9 micrograms of T3. In that, they're all the same. So you're not going to get things that they're all different doses.

There are only about five or six different dose you can choose from, I will tell you that, compared to levothyroxine, where you have about 12. But you do have various doses you can try with these patients.

The other thing-- the main difference between them, certainly if you look at cost, depends on where you are. Usually Armour's a little be more expensive. But look at cost. And there's apps you can put on your phone. there's others that you can look.

And I always look with my patients. I work with free clinic as well. And so I'm always looking where we can get cheap. And you can get them-- one time I got one of the DTEs for $9.00, $9.00 for three months. That was a sale that they got enough out there. So you look around. They're out there. So that's the same.

The big thing I look at, certainly, is cost for patients. These are prescription drugs, by the way, even though they're not FDA approval process. But this is very important. These are not-- make sure the patient knows that they don't buy these things over the counter.

So if there's anything that looks like it's thyroid hormone, that that's not what you mean here. You get it from any pharmacy-- CVS, Walgreens, they all have it, Costco, all of them have it. You can get it anywhere. And you just look and see which one is offering the cheapest dejour of that day.

The other thing is, I look for those ingredients. And one of the big things, the inactive product-- what gets people to having side effects for drugs is not just-- it's not the active drug, so much. Our big concern, by the way, our big concern with any of these drugs with T3, you worry about having a reaction to high levels of T3. And for any combination synthetic or DTE, you've got to look for that. More anxiety, they are not sleeping well, they're anxious and they're suddenly not able to sleep at all. And they'll complain about that. You'll know about it.

So I look for that, heart rate up, blood pressure up. If you manage it right, you're not going to see that problem. But the big thing you get is intolerances. And you look at the ingredients. And all of these DTE makers will list the ingredients. So I think less is better.

And you're going to see ingredients, I'm looking at, I think, Nature has put it on. Because I read, they nine ingredients, inactive ingredients. That's the fillers that's in a lot of pills we take. And then there is, I think, eight with Armour. And I know, I believe, NP Thyroid say there's three but there's actually four. There's another one in there.

So when you look at the fillers, some of the patients don't like the medication, they don't feel good. It's not the drug itself. It's the filler that's in there. And so when you look, and there's two main ones. We don't have to worry about gluten anymore on the outside. But two ones I want you to pay attention to, because you'll see people commenting it.

If you want to get good ideas what's going on when it comes to DTE and what your patients think or what they think about their providers is look at their blogs. Just say, thyroid blogs are very interesting. I look at thyroid, diabetes blogs. I look at them all. You'll get a lot of information from that.

So what is interesting, the two main things is microcrystalline. When people were complaining of Armour Thyroid intolerances, it was from the microcrystalline that's in there, which is also in Nature Thyroid. Understand what this is. It's in a lot of things. Have you had grated cheese on a piece of toast lately? That has microcrystalline.

All that is one of these-- it's an emulsifier. It allows two things that are liquids that are disparate that don't want to be coming together, it allows them to together and maintains your shelf life. You have it in cosmetics, a lot of foods, and the like.

Like oil, it allows oil and water to come together and stay down. So microcrystalline is one that is a problem. It's considered a grass by the Food Drug Administration. And it it's not considered harmful. But some people are intolerant. We all have different tolerances.

The other one that you're going to see, so those are two-- microcrystalline is in those two. The other thing you're going to see bloggers talk about is lactate. When they saw lactate that was listed on Nature Thyroid, I've never had patients have a problem with the Nature Thyroid either.

But lactate, please understand, lactate does not mean if you have a dairy allergy that you're going have a problem with DTE. No. That's not true. And lactate is also, by the way, in NP Thyroid. It's part of the pill itself. So you have lactate in both those things.

Now please understand, people worry about milk, dairy intolerance. If that's the case, that's a protein, that's a problem. But is lactose intolerant, that was a big thing. Lactose intolerant patients can't take Nature Thyroid. And they wouldn't take NP Thyroid either because it's got lactate in there.

Nay, nay that is not a concern. Do not worry about that because it's only 5 micrograms compared to 12,000 to 15,000 micrograms in an 8 ounce cup of milk. So patients are going to ask you, these are the little things, they're going to think, wow, this person knows what he or she is talking about. So that's important to know.

So when you're looking at that, generally, I prefer fewer ingredients in there. And you can look around. But again, cost is what's going to be a bigger driver for your patients. So I would look at that.

And you're going to be following up with them and we'll talk about how we're going to dose. We'll talk about how we can dose and how you start that on these patients. The one thing to keep in mind with this-- again, this is T3. So you'll be looking for any increase in T3. You can give this drug, by the way, can switch from levothyroxine, which I think is really easy to do in a primary care setting if you feel you can get away with it. There's certain things we'll talk about what you can look at.

But they have the Us Pharmacopeia and each of the DTE manufacturers will have a table which will show you what dose your patient's on. And if you're going to leap on from T4 over to T3, over to combo, DTE, what that dose should be. So like 100 micrograms of LT4, levothyroxine, is usually going to be equivocal to a 60-milligram, or one-grain dose, of a DTE. And it's right there. And it's been fairly smooth sailing. But I've not had and run into too many problems with that.

That's one option, certainly the easiest in a primary care setting. And I've done this a number of times. And by the way, people don't realize this, for every reason you give levothyroxine monotherapy, you can give DTEs. I've used it. And I feel like I need to let you know because this shows you people not listening to their patients.

I had a patient who came to me because her endocrinologist was not listening to her when she says she wasn't getting full, she didn't feel good on the levothyroxine. She's in her 30s. She wanted to get pregnant. She'd lost two preterm pregnancies. She felt it was the thyroid even though the labs looked fine.

She came to me. She wanted to be on a DTE. She came to me. I put her on a DTE. Bottom line, you can give DTEs in pregnancy as well. You can use that for all the same reasons. And suffice to say, she had a normal pregnancy and delivery.

Is that the reason? I'm listening to her. She felt great. All the pregnancy, she felt good. Within weeks of putting her on a DTE, she felt better. And usually they feel better, with any thyroid replacement hormone, within three to five weeks. And it stabilizes at about four weeks. So I wanted to make sure you knew that.

And all I did was I converted her, the levothyroxine that had her labs at target for somebody who get that TSH down below 2.5, down around 2 and below for that pregnancy. And then I just switched over to a DTE for equivalent dose and she did great.

So that's the easy way to do it. The other way could be if you're looking at-- you're a little nervous about giving that extra dose of that metabolically active T3, remember puts a kick in the myocardium, increases myocardial oxygen needs. So you're a little nervous about that.

Well, what you can do, quite simply, what I will do is I'll cut back. It's sort of how I would do if I was going to add pure T3. I will cut back the levothyroxine when I've patient a little leery of. And I'll cut back the levothyroxine by about 25 mics. I've noticed that these patients usually are up. I mean, we've been up dosing and they're over 100 mics, many of them.

And I know that they're taking it correctly. They're not taking with anything that's going to delay absorption. And so we're going through all this. Are they being consistent? Are they adherent? There's all this stuff. We have to make sure what's going on. They haven't gone off or on any of their estradiol hormones, birth control pills, or menopausal hormone replacement. So those things, things that can really affect those lab levels.

But I make sure-- what I'll do is I'll drop down that levothyroxine about 25 mics. And then I'll put them on the lower dose. I'll put them on 30 milligrams. Typically is what I do 30 milligrams of a DTE. And in that 30 milligrams, what you're looking at is about maybe 4 not quite 5 micrograms of T3. And then you've got about 18 or 19 micrograms of T4.

And what this does, you can watch, you'll see how the patients respond to T3. They're starting to feel better. You're not seeing a cardiac dip. That means their heart rate is not going up, their blood pressure is not going up. You pay attention to that. That's what we're looking for. That's where the harm is. So you want to be safe. So I look at that.

But what have we done when we've done that? I've done this a number of times. We've given them a kick of T3. And then what have we done? They still have a fairly good dose of levothyroxine on board, that T4 that's on there which, when you get a little extra T3 to it, you've got more that a 14 to 1, or 10 to 1 ratio of T4/T3. And for some patients, that seems to be good enough to understand that. So those are things to keep in mind, certainly when we're dosing patients.

Now up dosing, that's where it's a challenge. With any synthetic or DTEs, you can't-- T3 is a shorter half life, T3 hormone itself. And when you're looking at the half life of T3, you'll see anywhere between 18 hours to 36. Well, which is it? It's somewhere in between, but I will tell you it depends upon the product.

DTE's T3 is long acting. That's another reason why I like using a DTE, compared to the synthetics which are shorter acting. You often have to multi-dose. I like to decrease the pillage of my patients. Less pills, more consistency, more adherence. So I think you're going to have a longer half life with the T3 in the DTE than you are in the synthetics.

Compare that with levothyroxine. Many of you are very comfortable. You've given it. You're taking it. LT4, it's got to half like between 6 and 9 days. That's long. And that's good and bad. Because good, you can adjust doses up and down. You could add an extra pill a week or add two pills a week or decrease a pill when you're doing dose adjustments and see how patients go. They can do that for about 6 to 8 weeks and then you can check their labs.

You can't do that with T3. T3 is very metabolically active and there's a half life but it's shorter. And it's more potent. It's metabolically active. So you can't just suddenly jump up and make these quick adjustments or add an extra pill. So you have to be very careful of that if you have patients who've done that in the past with monotherapy of LT4.

So typically, when you start the meds, I like to see that usually I'm not-- 4 to 6 weeks, if it's just monotherapy of the LT4, when I'm adding a T3, I want to see that those levels go up. I'm going to be looking again at, certainly, within about 3 weeks.

In a more acute setting, I'm more worried if there's been really great problems with getting to target in that TSH and free T4/T3, I will check it in 2 weeks. But that's usually more in the acute states. But 3 to 4, I will look at that. And usually at 4 weeks, I will go ahead and you can go ahead and add it.

I have seen it, though it's usually you want to add it and add an extra dose to it to see what they need. Or up, you can go from 30 milligrams up to 60 milligrams. But that's generally what I'll do. I'll bring it up.

Some people will say, well, I'll let them take an extra 3 milligrams or an extra dose every, maybe, three times a week on top of what they're already on. And I am a little leery about that just because patients forget or they say, I double up or then they'll triple up. And that's a real problem. Patients have to be very well educated in how they take it.

That is the point I want to give for this. Educate them. They're not feeling good enough. They're not getting symptom relief. And they're thinking, you're not doing your job. And they're going to double up.

And I've been involved in some litigation from a consultant point of view where patients did double up their taking their thyroid hormone on their own, trying to get symptom relief on their own and went into profound thyroid storm. And there was no charting that the patients had been told how to treat it. So you have to be very careful that patients understand how to take it.

But you can increase the dose. I've done it. I start low and then go up. If I'm going to add it with levothyroxine, I can up the dose after that. But otherwise, you can just see how they do. Usually patients feel better.

If I'm just switching one for another, they generally feel better. If they're not, I'll just up the dose to the next dose higher than they have it and watch them, and then recheck labs about 3 to 4 weeks, see how they feel. And generally, they've done pretty good. They'll let if they feel better or not or they don't tolerate the pills.

So they say, and it's cliche, that medicine is more art than science. And when it comes to treating thyroid, I guess that pretty much is. You'll be looking at the labs. You'll be adding the T3. You'll be monitoring T3, by the way. Because the levels should be going up and you be able to see that. So TSH, free T4, and T3 or free T3.