Q&A and Discussion of Fundamentals of Pharmacogenomics

DR. WINN-DEEN: I think we have time for about five minutes worth of questions if the committee has any specific things they'd like to ask Dr. Weinshilboum. We'll have a second shot at him a little later in the session if you don't get all your questions answered.

Julio?

DR. LICINIO: Hi, Dick.

DR. WEINSHILBOUM: Good morning.

DR. LICINIO: Yes, good morning. Wonderful presentation again.

We had a discussion yesterday which I think you could elucidate in your presentation, which is that one of the things that strikes me about the field is that what you presented is very clear and incontrovertible. While we could question if someone has a gene for some disease, it gives a predisposition, they may or may not have the disease. These cases are pretty clear. If you don't have the enzyme, you're not going to metabolize the drug, period. So this is as clear-cut as you can get in terms of genetics.

If on the other side, the testing, which was a big topic of discussion here yesterday, is still controversial, for this it should not be, and yet it's not out there. So we had a discussion yesterday about these people putting these ads in the Internet and saying send your DNA here, we'll test it for you, and we'll do these tests, and there was a big discussion about how to regulate testing. But my view is that as long as there is a need, people are going to do it. If you don't allow it in this country, they're just going to send their sample to Canada or to England or to wherever.

Why, in your view -- I mean, I know it's beginning to catch up, and I actually cited yesterday your own institution as an example, where if you go for regular care you can get some of these things tested and get your treatment pharmacogenetically oriented. But it's not the mainstream of treatment yet, and it's so established, so old, so solid, why, if you just go to the academic medical center X, a good medical center in a good city, why don't they test for CYP2D6 before they give a drug that's metabolized by that enzyme? What's the delay? What's going on?

DR. WEINSHILBOUM: Well, of course, Julio is asking one of the many questions that I've asked over the years because I have been going around overdosing audiences on this sort of information, particularly for the more dramatic examples. For some of the well-established examples, and TPMT and CYP2D6 are used as examples because they are relatively straightforward and dramatic. That's why I said they're demonstration projects which if they did not exist, merely to make the point you'd have to invent them. Well, you didn't have to invent them. They're actually there, and some of us are fortunate to have been lucky enough to stumble across them early on.

Part of the difficulty is at the level of the practicing physician understanding this kind of information and these concepts. We'll talk about that later and actually, Julio, I'll mention this later when I make my later presentation about practice of medicine. At our place, we have a genomics education program which focuses both on therapeutics and diagnostics, which we have funded by a private foundation about a million dollars a year merely to continually raise the consciousness of the physicians and educate them.

Now, physicians are intelligent and want to do what's best for their patients, but the vocabulary is a bit of a barrier here. We have to make things user friendly and easy for the physicians.

Number two, Julio is right with regard to in this age of information and the Internet that the patients are beginning to drive the process, and we need to be careful about not having inappropriate expectations on the basis of the patients. So patient education, as we'll mention in a moment, is also going to be an interesting challenge.

I get the opportunity to present at something called internal medicine reviews, which for the upper midwest means a lot of internists like myself come in and want to hear what's going on, and even dental reviews. At dental reviews, which are dentists from the upper midwest, they're telling me that their patients are coming in having done just what Dr. Licinio said, having been tested over the Internet, and they all know their 2D6 genotype because they don't want to get Tylenol number 3 with codeine if they can't respond to it.

I found this fascinating, that dentists are now seeing this. So the patients may be ahead of the profession in some ways. There are a lot of other barriers that we'll have to talk about when we go into the further discussion, but I think this is a very great challenge, and you actually mentioned this in your introductory comments with regard to the barriers to the introduction of this science across what I refer to as the translational boundary.

DR. WINN-DEEN: Thanks.

We've got time for a quick one more, Ed.

DR. McCABE: You mentioned that I think it was TPMT, that there had been consideration for labelling by the FDA. Was that included in labelling, the pharmacogenetics?

DR. WEINSHILBOUM: There were two public hearings, and Felix Frueh is here, and we have representatives of the FDA, and I'm just this guy from Minnesota who was invited in to testify. It is my impression that the labelling has been changed to make information with regard to the existence of the genetic polymorphism and the availability of testing -- there was no mandate for testing -- to make the physician aware of that information.

DR. WINN-DEEN: Okay, I'm sorry. We're going to try to keep on time, which means we have to move on to the next talk.