Expanding Male Contraceptive Options: Study Investigating A New Contraceptive Gel

Men who wish to control their fertility currently have limited options. They have to rely on their female partner using contraceptives, use condoms, undergo vasectomy, or abstain. The male contraceptive study being discussed is testing a gel as a possible new method for male family planning. It is a transparent gel applied daily to the skin of the shoulders. It aims to decrease a man's sperm production in a reversible way without reducing sexual drive. The study also looks at the men's compliance and couple's acceptance of this contraceptive method.

Expanding male contraceptive options could help make family planning more of a shared responsibility between women and men. We are taking a deep dive into the study and recruitment requirements with the Director, Women's Health Clinical Research Center at University of Pennsylvania and Principal Investigator of the study at Penn Fertility Care Dr. Kurt T. Barnhart and Director of Operations, Elizabeth Steider. Joining us on the advocate panel is Dr. Logan Nickels, Research Director at Male Contraceptive Initiative and fertility coach and author Kristen Darcy.

Full Transcript:

Priya Menon: Hello and welcome to CureTalks at Penn. I'm Priya Menon and today we are discussing a new study testing "The effectiveness of a male contraceptive gel as a possible new method for male family planning" being conducted at the University of Pennsylvania. We have with us the Principal Investigator of the study Dr. Kurt Barnhart and Director of Operations Elizabeth Steider. Joining us as part of the advocates panel is Dr. Logan Nickels, Director Male Contraceptive Initiative and also Infertility Coach Kristen Darcy. Everybody thank you very much for being here. I'm going to start by asking Dr. Barnhart to talk a little bit on what the study is about, touching upon some of the primary objectives that we are looking at in the study.

Dr. Kurt Barnhart: Sure. I'm really excited about this study because it really is kind of ground-breaking. We've been studying here at the University of Pennsylvania methods of family planning for a long time and we are happy to say we work with some companies bringing them to market and new ideas as well. This one is exciting because we're studying not only methods that will help women but will help men as well. So, what we're really studying is hopefully the first commercially available male contraceptive and that male contraceptive is in the form of a gel which contains two hormones one called Nestorone and one called testosterone which will allow lowering of the sperm count. Therefore, allowing a couple to enjoy contraception. This is what's called a phase 2b study meaning it's both a combination of proving that this works well and that we intend it to be safe. But also, in a large number of women and couple I should say that it actually does provide safe contraception. So, I'm happy to talk about that study. I'm very excited about it. I think it will have a great impact.

Priya Menon: Dr. Barnhart, this is really truly exciting when I read about the study and definitely would open up more options for couples. And I think you just did mention that it's a combination gel and can you delve a little bit deeper into the mechanism of action of this gel and what are some of the side effects, if any that we are looking at?

Dr. Kurt Barnhart: Sure. Let me start at a really high level. In women, contraception has been a little bit

easier because we can separate for example ovulation or the egg itself from all the other characteristics a woman has. We can actually stop the egg from ovulating without affecting any of the other hormones or side effects. In men it's a little bit harder because the testosterone that a man makes gives a man his characteristics as well as drives sperm count. So, we're using two drugs to take care of that. In other words, we are using one drug called Nestorone, which is the progesterone which works on the body's pituitary gland to say stop making testosterone or stop driving the testis to make the sperm. And we know that if left alone would lower a man's sperm count but also lower testosterone and therefore have side effects of low testosterone. So, the second drug, that's a combination, is to give back some testosterone such that we are at the same time giving and maintaining the men's symptoms, side effects profiles everything about in that makes men while lowering the sperm count. So, it's a combination of both the progesterone to lower the sperm count and then giving back some testosterone will allow them to have the normal symptoms and the normal life that he should enjoy.

Priya Menon: And what are some of the eligibility criteria that we are looking at?

Dr. Kurt Barnhart: Yeah, so basically this is looking for healthy couples. Anyone is potentially eligible as long as they're within a certain age. I believe it's 18 to 50, but generally we're starting with the idea of healthy couples that could get pregnant on their own that want contraception. People need to be in the study for almost up to two years, but at least a year where we are testing to see It works as a contraception. So, one of the main criteria is couples obviously don't want to have children in those two years. So, really it starts with a pool of healthy couples desiring pregnancy, but not yet. And then we start excluding people mostly for safety reasons. We don't want to enrol men that already have some side effects that might be exacerbated by testosterone like high blood pressure or enlarged prostate or things like that. Again, we're looking for healthy couples and then we'll go through a series of very specific criteria to make sure that it would not be a good contraceptive option for them for things like, blood tests and blood pressure and things like that.

Priya Menon: You did mention that the couple should not get pregnant during the course of the study. So, what happens if a couple gets pregnant?

Dr. Kurt Barnhart: Well, there's kind of two phases to the study. The actual study is looking to try to get a couple to use this for a year and see if it works like many female birth controls. Do you want to study it for a year? How effective is it in a year? But it takes us a couple of months to get the couples ready and then there's a follow-up period. So, they are really in the study for around two years or up to two years. So, in the first part of the study we don't want the couple to get pregnant. So, the woman is using her own kind of birth control and then we're assessing its efficacy for a year. There is a possibility people can get pregnant, all birth control methods have a failure rate and we will monitor that and follow that along but there's no evidence that if they do become pregnant while using this that there's any harm to the baby or harm to pregnancy. So, like any couple that gets pregnant unexpectedly we would help them diagnose the pregnancy and make sure the pregnancy is progressing fine. And then the couple can make their own decisions on how to proceed.

Priya Menon: Beth, I'm going to pull you in here. So, as Dr. Barnhart just mentioned, we're going to be enrolling couples. So, what is the consent going to be like will the couple have a single consent, or will they need to do that separately?

Elizabeth Steider: Yeah, so typically the conversation is done together. But each partner does consent for themselves. So, prior to any research procedures, they would go through a consent document in detail with

members of the research team that would talk about everything that was planned for the study, visits and procedures, testing, information about risks and benefits, explanations about how we would keep their information confidential etc. Basically everything that they really should know in order to make this decision and then they will each sign a consent form specific to their role in study participation because requirements for each partner are different and prior to that we make sure that they have ample time to review it and discuss it amongst themselves and with others if they wish prior to making that decision.

Priya Menon: Beth, can you also talk a little bit about what would be required during the course of the study in terms of clinic visits? How many times do they have to visit, taking co questionnaires and tests?

Elizabeth Steider: Yeah. So, as Dr. Barnhart had mentioned there are a few different phases of this study. So, during the suppression phase in the beginning, well initially there is a screening visit to sort of determine if they're eligible to begin this study and then once suppression starts that last up to four months and during that period the male partner needs to come into the office about every other week. And what we're looking for primarily there is to do semen analysis to see that the male partner's sperm count is lowering because we need to see that dip down to a low level in order for them to be eligible for the efficacy phase of the study. So, their semen analysis and blood work there are some physical and andrological exams for the males throughout. During this suppression phase there's not a lot that the female partner needs to do. She should be keeping a menstrual and coital diary during the course of the study. So that will occur during all Phases and then during the efficacy phase, the male partner will be coming in about once a month and as Dr. Barnhart mentioned that's a 12-month period. During that period the female partner comes in every other month. Both of them are doing blood work during this time. There are some questionnaires at certain points and then once they've gotten through 12 months of efficacy, they will enter the recovery phase which is up to 6 months. The male partner will continue to come in about once a month for those same kinds of tests. So, opposite of what we were looking at in the beginning. We're looking to see that sperm count go back up to normal. Ideally at the end of the and during this period the female really only comes in once and then the male has a final visit. So, there are many more visits for the male than the female as you might anticipate with every study of this kind.

Priya Menon: Thank you Beth and Logan it is a very interesting trial and I'm sure the community at male contraceptive initiative would find it intriguing and I know you have questions for Dr. Barnhart. Please go ahead and ask your questions.

Dr. Logan Nickels: Sure. I think this play into just with Beth was talking about. Could you talk a little more about the suppression and the recovery phases and what patients might expect in terms of a timeline before efficacy and return to fertility and I think a lot of people are coming to terms with all the talk about vaccines and the time between a treatment and efficacy and I think for this particular treatment, that'd be pretty interesting for patients to understand what they can expect?

Dr. Kurt Barnhart: Again, this is just a jargon, but this is not yet a phase 3 trial meaning, we just want to prove it works. We're still doing a little bit of fine-tuning. So, the suppression part of this phase which takes a few months basically to see how quickly the sperm count goes down. And then how many people that actually goes down to a level we think is going to be contraceptive. Once we reach that then we enter the phase where it's like all right let's use it as a family planning method for up to a year. If a couple decides they don't want to use it anymore and the year is up and they stop taking the gel and we think the sperm count is going to come back up to where it was before, we want to reassess that. That's why there's that recovery period of around 6 months so we can actually see how quickly does it come back and does it come back to normal. We estimated that it will be up to 6 months. But sometimes the sperm count goes up really quickly and you don't have to wait 6 months, but we want to make sure we have a long enough period that we see everybody recover. So, this is obviously not the way it will be used to real practice. But the idea is

that we can very quickly and scientifically understand how it works just to suppress the sperm count, how long it maintains that way and then how quickly people come back to normal levels because we want this to be safe and reversible. We want this to be an option, not a permanent thing.

Dr. Logan Nickels: So I have a quick follow-up on that then, should this become approved and available to the public, would users potentially go to a primary care doctor to get sperm counts would that be something to be potentially able to do at home. I know there are a lot of products that are making the way to market now. There are do at home fertility checks. You think that's a possibility?

Dr. Kurt Barnhart: Well, it's going to be fun to speculate because we obviously don't know about that. That's why we do a study like this because we want to be able to inform those kinds of questions. If after this study which is by the way done in around the world as has been done in Europe as well as well as multiple places in the United States we are really happy to be one of the sites and we think this is going to be terrific. But the study is going to answer those questions like how sure are we that the sperm count goes down to zero or do you need to check the sperm count at all? There are ways as you mentioned to check this at home. We hope that's not going to be mandated but we want this product to be very confident that if you use it for this period of time your sperm count will be low enough to work as family planning and then we want to be able to confidently say and whenever you choose to stop it your sperm count is going to come back and we'll move in X period of time. So, hopefully those questions will be answered, how is it administered? Again, we can talk about that all we want but, in the end, there are questionnaires in this trial that ask both the male and the female partner who would you prefer to prescribe it to you? You want it to be your family doctor, you want it to be a pharmacist, you want it to be your urologist, but that's all just gathering information. We don't know how this will be flowing out except that if it is safe and effective, it should be widely available.

Dr. Logan Nickels: One other question I had was about the gel itself. Can you talk a little bit more about how men would use that gel and then maybe what are some of the upsides or downsides of using a gel for delivery instead of a daily pill?

Dr. Kurt Barnhart: Yeah, sure. I think the gel is a very clever idea. So, the idea is that both of the hormones I mentioned before are mixed in the gel. So, you don't have to worry about the dosage, you don't have to worry about is the concentration, right? You don't have to do anything other than take a little canister and push down on it and get a pump of gel onto your hand. Those canisters are made such that they give very close to the same amount of gel and therefore the same amount of drug with each pump and a man uses two pumps one on the right shoulder, one on the left shoulder, shoulder or the arm area is the idea. And then the hormones are absorbed through the skin and they absorb relatively slowly. It's not like just one dose of hormones. They absorb the gel mildly over the course of the gel for a couple of hours. There is a little bit of limitations, the people are going to have to learn how to use for example, the gentleman shouldn't shower for 4 hours because you don't want to wash the dose away. So, find a time in the day where that's comfortable for you, but generally speaking it's easier than taking a pill. It's not difficult to apply a gel to yourself. So, I think it will be very acceptable.

Dr. Logan Nickels: Awesome. Thank you.

Kristen Darcy: That's great. Well, I have a question. Well not a question, but I was excited to be part of this discussion because of the overall Men's Health Gap. When men come to 18 and opt out of paediatric care, there's a gap and when I see my clients, it's usually it's because of the crisis in fertility. And what I was excited about hearing from you is what you just said is that hopefully this will change the perception for men

and their health care, their overall wellness that they will have a continuity of care into whatever choice that you out of the study deem appropriate for men to go to urologist or primary care or whatever that continuation. Because what I have found, and I don't know what you're finding in your study is there's men don't go to the doctors for their annual physicals. They only go if they're bleeding and one or the other doctors told me if they are wounded. So, I wonder if within the study is there any questioning about that because I feel like that would bring a wealth of information about men's mindset for their medical wellness.

Dr. Kurt Barnhart: Yeah, I think that's a really important point. Again, we're not going to be able to answer all of those questions with the study, but I'll touch on a few. You're right, once a man stops seeing his paediatrician and stops getting his physicals to play sports in high school or college, they may come back to a doctor until they have chest pain at 45 or something like that. So, this is an opportunity that man not only can take responsibility and make good life choices and use contraception but might have access to a health care provider to check their blood pressure once in a while, do a physical exam. So, we might be able to have a well man exhibit, a well man exam. Like you have Well Woman exams. Now, it's like that is exciting that we can keep men engaged in the health system for their own benefit. Again how it's going to be administered and who's going to give it to them, there are things to be worked out but if it really is as safe and effective as we think I don't think there's going to be paediatricians or family practitioners or internists that are going to be afraid to prescribe this and that would be a reason for them to see their doctor, get the prescription and hopefully, live a healthy life.

Kristen Darcy: That's amazing. I have one more question. I know you touched on this, but my clients are really in the throes of trying to create a family and I was wondering, I love your thoughtfulness about the kind of the arc or the bell curve on the other side of the study about how you're tracking to make sure that that sperm count does come up. So has there been conversation about if a man is on this for a two-year period. I know that you'll probably find this out in the study, but is there going to be a waiting period before they can actively try to have a child after this.

Dr. Kurt Barnhart: As you know these are questions that we need to have to give very firm data on to the FDA who can make recommendations and things like the label for this product and how to use it. But anecdotally, someone that's worked with testosterone replacement or work with men trying to get pregnant that have used testosterone replacement for variety of reasons or even for athletics. We know that the sperm count really does bounce back pretty quickly. But the idea is you don't take my word for it. We want to get a number on want to be able to say, it'll come back 90% of the time by X days. There are people again anecdotally in this trial who conceived the pregnancy seven days after they stopped the gel. So, I'm really not worried that it's not going to come back to normal. It's just a question of understanding the true bell-shaped curve as you said. This is designed to be reversible and I think it will be and we know that from all the uses of testosterone prior to the study at once you do stop things do bounce back to normal assuming they were normal in the beginning.

Kristen Darcy: Okay. Thank you.

Priya Menon: Kristen, thank you very much. Beth, I have a question. So is this study compensating the participants seeing that it is almost 2 years long.

Elizabeth Steider: Yeah. So, we do compensate the couples for their time and effort associated with the study. They are paid per visit. So, you know one thing to know as we were talking about all these different phases except for the 12 months of efficacy that's four months and six months. That's going to vary because it's dependent upon sperm count. So, if a man only needs a month to suppress his sperm count in the beginning he won't have as many visits. So, the amount that each person will be compensated for participation may vary depending on how many visits they actually have.

Priya Menon: Okay.

Dr. Kurt Barnhart: But the amount is meant to be commensurate with the time and end of the day.

Elizabeth Steider: Oh, so indeed. Yeah. So, the male participants I think the total if they complete all of the possible visits for this study, it's about $2,500 and for the women, it's about 900 thereabouts 850 maybe.

Priya Menon: Dr. Barnhart ,one last question before we end today's session, I know you did touch upon this but can you also talk a little bit more about some of the risks that you see associated with this trial, if there are any?

Dr. Kurt Barnhart: Yeah, there are. Two things can happen with testosterone replacement and we're looking for this very carefully in the study. Remember that progesterone is used to suppress the sperm count and then we're giving back testosterones so that the man has normal sperms. Theoretically if the dose is too high people who have symptoms of over testosterone and we want to make sure that isn't the case. High blood pressure, enlargement of the prostate, blood clots things like that. So, we want to make sure that the level isn't that high and there aren't any risks in that aspect. The other side of the coin is we could be giving them two little and they could be having signs of low testosterone, decreased libido, decreased energy, hot flashes and we want to make sure those aren't the symptoms as well. Honestly, we think we're probably underdosing rather than overdosing which is why in this study there's what's called a sub study that when we check a man's testosterone during this study if it is too low or if he's experiencing symptoms of low testosterone, like low energy. We can enrol him to say well, let's give you a slightly higher dose to see if that alleviates. So, this study has two doses. Actually testosterone we're trying to figure out which is the best one. And again, I think we're for safety reasons underdosing rather than overdosing. And again, I think for safety reasons we are under dosing rather than overdosing. And if we think we are under dosing and man is not comfortable with it or this is affecting his life then we have a way of increasing the dose to make sure that things get back to normal.

Priya Menon: Thank you, Dr. Barnhart, we just heard that expanding the study is definitely looking at expanding male contraceptive options with safe, effective and reversible tools, which would make Family Planning more of a shared responsibility between women and men. On that note, we will conclude this discussion today. Thank you, Dr. Barnhart, Beth, Logan and Kristen, it was great having all of you on Cure talks at PENN. Thank you.