



WINN FELINE FOUNDATION

For the Health and Well-being of All Cats

637 Wyckoff Ave., Suite 336, Wyckoff, NJ 07481 • www.winnfelinefoundation.org
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2012 Winn Symposium

Question and Answer Session

Beginning of Question and Answer Audio

Steve Dale: Thank you Dr. Rush. I have heard many cardiology talks and I think that was great because it all was in language we all could understand. Thank you again, thank you!

Now I have got these cards and Maurine, Maurine wave your arm! There she is! Please give her the cards, questions you have on the talk you have just heard and I am going to call our speakers back up here to answer some questions that I have that you have asked. If you would like to add more it does not have to be on a card. If you cannot find one scribble on a piece of paper and give one to Maurine. I think the best thing is for both of you to stand to my left so people can see you and share maybe the microphone back and forth.

The first one as the dance together is Leslie Lyons. Do you have any FIP updates?

Oh yes, you know what? No matter where we go the subject could be 'Why do cats inappropriately eliminate?' The subject could be bungee cord jumping and people always ask about FIP.

Dr. Leslie Lyons: Yea always a talk that starts off with silver and FIP and just be done with it.

So Dr. Peterson is very jazzed. He too has learned how to use DNA arrays so it has been very fun working back and forth. He is always trying to steal my Italian and, you know, so she has been teaching their lab how to use the DNA arrays and so he has one of those Manhattan plots too. We started with Birman and because they seemed like they had a higher frequency or so. We want any samples of cats with FIP. Alright, because if you solve it in one breed you will automatically go look in another, just like the HCMs, once you find one mutation you will check all the other breeds also. So you have to have the samples to be able to know. You need unrelated cats too so there is a question up here about 'Do you want samples from this Birman I have?' Well yes because they can be used as controls for these studies as well. He has a Manhattan plot, he has several peaks. What you have to keep in mind is he is working on a very complex trait. It is not going to be a single gene that causes cats to have FIP. It is probably going to be more like a susceptibility resistance type part kind of like what HCM is. So, he has several peaks and he is looking at those and although he is retiring in January, he has already negotiated to keep his lab and a technician and he is not leaving until he finds something about FIP. So we are getting there.

Steve Dale: Yea well when you said that at last year's symposium the expression on his wife's face.

Dr. Rush, and then I have some questions here. But I have my own question here about HCM because of my interest in this disease in cats. How many of you have had a cat or have sold a cat with HCM? I said it was common, there you go and you mentioned domestic short hair and long hair cats. This is not only a pedigreed cat issue. We talked about Dr. Peterson not retiring. You are younger [Yea]. This is going to

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happen sooner I hope. Do you really see and there is a question in here about this to so it is not only my question. Is there a medication perhaps on the horizon that if not you one of your colleagues may be working on and is the answer a medication or is it in genetics?

Easy huh!

Dr. John Rush: The answer there is just really complex. There is clearly going to be genetic underpinnings. There are probably other genes that are inherited currently that are going to impact the expression of it so that might explain why some will get it bad and some do not get it or will get a mild form of the disease. I think our hope is that we will kind of find something that may alter it. I think it is going to be a disease that is with us for a long time and we are probably going to be able to palliate it. We will get better with figuring out which medications help but I would be surprised if it went the way of dilated cardiomyopathy. I would be surprised if that happened.

Steve Dale: But we need all of you to help and if everyone here, \$20. I am just naming a number and then some of the people you know and spread the word about it. I think anyway we can really make a difference. You mentioned the proBNP test. The question is, 'Is that widely available at veterinary offices?'

Dr. John Rush: The anti-proBNP test is available for dogs and cats through one of the companies, one of the ones that I consulted with to try to look at this test. It is available through IDEXX which is one of the main companies that does laboratory testing. There is a dog BNP test that is available through AMTAC which is one of the other major laboratories and so those are the two that are available to my knowledge. AMTAC does not yet have a cat BNP so if you wanted to do BNPs in cats it would have to be IDEXX at this stage.

Steve Dale: Are you sure, Leslie Lyons, that heterozygous cats with a Burmese head fault gene are asymptomatic? In American short hairs this does not seem to be the case.

Dr. Leslie Lyons: Yea exactly, that is something that we will discuss at the breed council meeting tomorrow is that cats that have one copy of the mutation have a fairly brachiocephalic face. They still are the cats that are going to have cherry eye issues and dermoids and issues like that. So maintaining that mutation still might not necessarily be the best idea so they are not going to have the severe craniofacial defect but they still have some other problems that we kind of want to strongly consider getting rid of.

Steve Dale: Should we as Maine coon breeders do both, and this is a great question, the genetic test, which by the way the Winn Feline Foundation supported funding for, and the echocardiogram or just the echo.

Dr. John Rush: And/or BNP to decide if they are going to do the echo or not.

Steve Dale: Explain what you mean by that.

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Dr. John Rush: Yea so to me that is a really hard question to know the answer to because the genetic test if it comes back positive it probably tells you that there is a much greater likelihood that cat might develop hypertrophic cardiomyopathy in the future. It does not tell you in absolute certainty. The homozygotes are probably going to get hypertrophic cardiomyopathy, but the ones that carry just one of the two genes they may or may not get hypertrophic cardiomyopathy. But, if we tell you that you need to be more vigilant than someone who has the negative test, I think that is helpful. I think probably I would have to defer to Dr. Meurs, I have heard her lecture a couple of times on breeding suggestions and that is also a nuanced thing as to who you should breed and not breed because she is very worried that if you pull 33% of the cats out of the breeding population that that is not a good plan either so you know if the test is positive and they got bad disease at an early age that is one that you want to pull out of the breeding pool but just because it tested positive maybe not. So then you have a cat that has a positive gene test, then because this disease goes from a normal echo to mildly abnormal echo to very abnormal echo during the course of the cat's life do you test every year? Do you test every other year? Should you do that testing by an echo, should you do that testing by BNP and only do the echo if the BNP is high? Those are difficult questions to answer. Some people are advocating once a year echoing is that over kill? Well maybe but...

Steve Dale: Yea, I have a Devon rex and I can relate to that. Where are you, you Leslie Lyons? Where are you in identifying a gene for mutating the enteric corona virus and FIP?

Dr. Leslie Lyons: Well that is something I am personally not looking at so that is where we are with FIP is pretty much Dr. Peterson who is studying that. He is approaching it more from the particular cat point of view. So when cats get FIP they have it. Most all cats have enteric corona viruses. At some point one gets a very high proliferation of this virus and it tends to mutate and then some cats cannot deal with that and they get FIP. So you have to consider both the virus but also the genetics of the host as well. So Dr. Peterson is approaching it from the point of view of the genetics of the host trying to find a gene that might fight it off for cats in that it may either keeps their enteric corona virus levels down or when you get a mutated versions actually deals with that and the cats do not get FIP. There is probably going to be different genes along the way that will help with different aspects.

Steve Dale: Thank you. Dr. Rush, it says here 'When is it exactly that you are going to go bungee cord jumping?' No that is not what it says at all. What a zapper, I am with you!

What is the role of EKG in diagnosing HCM?

Dr. John Rush: The EKG we did not talk very much about, the EKG or an electrocardiogram measures the electrical activity of the heart. In order to get the upper chambers to contract first and prime the lower chambers that has to be done in a coordinated electrical activity and the EKG records that and some cats with heart disease have irregular heartbeats. They have premature beats or have fibrillation waves and that is one of the things that can lead to fainting. In a cat, who after listening the veterinarian identifies an irregular heart rhythm that for sure is the situation where an EKG is helpful. In a cat that has had an episode of fainting the EKG is helpful. I think from a routine diagnostic standpoint in every single cat it is not clear to me that an EKG is all that helpful.

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Steve Dale: Okay, ‘Can I help,’ it says here for Lesley Lyons, ‘with the Orange gene studies?’ There a study of renal amyloidosis?

Dr. Leslie Lyons: Yea, you know any time samples get sent to the lab we will search through our data base and try to figure out which ones might be good controls for this or that or other various different projects. People that just give – when I walk around at cat shows and collect samples you never know they might already be in an Orange project or controls for something or things like that. So with amyloidosis, yes there is a study to start, well I have a colleague that very much wants to study amyloidosis whether it is in abyssinians or also siamese. Abyssinians tend to have more renal effects of amyloidosis whereas siamese or Orientals tend to have more hepatic involvement of amyloidosis. Yes we very much want to study those diseases. Very actively we want to try to collect those samples so if you have a cat that does not have amyloidosis please send that sample in as well. When I say a good buccal swab that means you know get the Q-tip up between and underneath the whisker pad and roll that around good. Do both ends of the Q-tip. We sometimes get people who send in something and they did not do both ends so how do you know which end they did? Right? Send in a couple buccal swabs, you know several investigators still want blood samples. That is because they do a lot of different things, they are searching a lot of different genes and so yes the buccal swabs can be good. Blood samples are still always better but I realize I am going to get more samples by taking buccal swabs. But they still have to be good ones and you know there is a lot of spit in there, keep rolling it around until something comes off.

Steve Dale: When push comes to shove for hypertrophic cardiomyopathy does an early diagnosis really matter? I think that is a really good question I mean the cat is either going to have signs, and what you did not mention that maybe you could also talk about is cats percentage or some number of cats that are diagnosed with hypertrophic cardiomyopathy that die at 21 of something else.

Dr. John Rush: Hypertrophic cardiomyopathy can be a really bad aggressive malignant disease or it can be relatively benign and we certainly see some cats that have murmurs and we do an echo – they have mild thickening of their heart and we echo a year later and it is about the same. We echo two years later and it is about the same and then they never have a problem with their heart. That is challenging and I think based on that the more advanced the disease is the more likely we want to try and start some treatment. The bigger the left atrium is the more likely it is that somebody is going to want to start either an anticlotting medication to try and prevent arterial embolism or something like an ACE inhibitor like benazepril or enalapril to try to delay the time until heart failure comes on and then we talk about that outflow tract obstruction and systolic anterior motion of the mitral valve, that is one of the things that often causes a really loud murmur. A lot of cardiologists feel that giving the beta blocker is helpful because if they give the beta blocker they may be able to make that outflow tract obstruction go away and in a subpopulation of cats the walls get a little bit thinner and then people think well if we have made the walls of the heart less thick we probably have helped this cat. What we do not actually know is just because the murmur is not as loud and the wall are not as thick whether that actually translates into a better survival or not. I am actually dubious, but I am probably the lone cardiologist on the planet who thinks that way. That is what the

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majority of cardiologist think, if there is a big time outflow tract obstruction, treat them with a beta blocker.

Yes to the degree that we are confident in any part of feline heart disease there are a lot of people that think if you have got moderate to marked disease in any symptomatic cat it is worthwhile giving some medicine.

Steve Dale: But then could you be doing more harm than good?

Dr. John Rush: Could it be doing more harm than good? I do not think so. My best assessment is not and I think the bigger the left atrium is the less likely it is that you are going to do any harm.

Steve Dale: The lineage test that you were talking about: Is that available *now*? And, how do I find it?

Dr. Leslie Lyons: Yes it is available now, *now, now!* You can go to the web site a UC Davis so it is www.vgl.ucdavis.edu. VGL stands for veterinary genetics laboratory. Any time we develop a test, we do it in a way that is very slow and expensive and then we publish a paper. Then we give all our control samples, all the genetic sequence and everything over to the service laboratory and they probably do actually a much better job than we do in the research lab of getting that through production fast with the extremely high quality of being accurate and correct. With this test, this test is more of a fun test too. Alright so we can kind of think about it that way. Only Davis is going to be able to offer it and so it is at Davis right now and it is mainly a fun test for your random breed cats but it can be useful to some of the breeds as well.

Steve Dale: Might there be medical uses for that potentially as well?

Steve: Might that be medical uses for that potentially as well.

Leslie Lyons: Yeah. So medical uses, we would be careful with that, you know the dog test kind of gets totally that way and I wanna be careful with that type of advertisement. If your cat truly is have Persian or quarter Persian then I do not say yes. Then your might want to check that cat for polycystic kidney disease. So the genetic test with that ancestry test and then it will try to decide for whether you have high percentage of breed. If you do not, you are not going to get a breed reported back. We are not going to force a breed to match because that is just incorrect. So if you force the breed to match then you are going to call somebody have false worry about some genetic problems that might be in their breed. So we are trying to be very cautious with the advertisement for this test that, but breeds can use it for some extent.

Steve: I think it is a lot of fun actually.

Leslie Lyons: The website again is www.vgl.ucdavis.edu.

Steve: Do it one more time.

Leslie Lyons: www.vgl.ucdavis.edu.

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Steve: Thank you. This in my hand is the last question. How often do you see cats and this kind of long answer that you mentioned before and I get this, which I asked cardiologist? How often do you see cats with stress murmurs, no echo abnormalities, what you tell the people?

John Rush: Since we are given our website stuff. If you Google tufts and heartsmart all one word, heartsmart, we have there is some dietary stuff there that may helpful to you as well as little bit information about the diseases. I guess the question is cats that have the murmur, especially in murmur there. Some of those cats have significant heart disease and some of those cats have no significant heart disease. They just have a little bit of turbulent blood flow on the right side of their heart and that is really the whole problem and if you do an echo and the walls are thick and there is a little bit turbulence in the heart, it is not really a big deal though the likelihood of that would be cause for reevaluation.

Steve: It is either in the website my cat's heart or your cat's heart. You know which one I am talking about. Okay. There is a website that is either my cat's heart or yourcatsheart.com of great information as well, which cardiologist puts together. Is this a great team we have for you today?.

Steve: However, before we go.

Leslie Lyons: Before we go, yeah. It is just like a research updates and I did really highlighted enough in my talk. Yeah money for these chips that is really fantastic but the Winn Foundation and the AVMF hold together and formed the cat and that is really what push researcher forward with doing these raise studies and most of the that money really came from the Winn Foundation, so when you see on this research update, when you see, so that means that she has a candidate gene that she is perhaps looking at it, but by the Winn Foundation funding these private projects that is really pushing these raise studies over the edge and getting results back into your hands. So we really have to appreciate the Winn Foundation for the work they did.

Steve: Thank you Dr. Rush. Thank you Dr. Lyons.

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