What is Wild Type TTR Cardiac Amyloidosis?

by Mathew S. Maurer, MD, Arnold and Arlene Goldstein Professor of Cardiology, Columbia University Medical Center, New York Presbyterian Hospital

This form of cardiac amyloidosis is due to the deposition of normal or “wild type” transthyretin (TTR). This means that the transthyretin gene does not harbor any mutations. In other words, just the way that TTR exists in the “wild”.

This form of transthyretin cardiac amyloidosis is different from the type seen in people who have a mutation in their transthyretin gene. That type is called familial amyloid cardiomyopathy. This difference is important. Since there are no known genetic causes for wild type TTR cardiac amyloidosis it means that family members are not at added risk for this condition.

What are other names for Wild Type TTR cardiac amyloidosis? Wild type transthyretin amyloidosis which is abbreviated ATTR-wt) has been called senile cardiac amyloidosis, senile systemic amyloidosis and age-related cardiac amyloidosis. These former names indicate that this condition predominantly affects older adults and that the principle organ affected is the heart.

How common is Wild Type TTR cardiac amyloidosis?

Among newly seen patients at most amyloid centers, ATTRwt cardiac amyloidosis is the most common type of amyloidosis. The increase in the number of patients being diagnosed with ATTRwt cardiac amyloidosis has been attributed to several factors including:
The foundation has several programs that benefit patients and their families. All of these are provided free of charge.

- Webinar recordings posted on our website
- Updated informational pamphlets
- Toll Free Number 1-877-AMYLOID
- Listing of experienced physicians that specialize in amyloidosis. Email us anytime

Meet our new Board of Directors

Sheryl Kernodle, RN has called Vanderbilt Medical Center home for the last seven years, where she has worked as a Cardiac nurse in the Cardio-Oncology, Advanced Heart Failure/Amyloidosis clinic at the Vanderbilt Heart and Vascular Institute in Nashville, TN. She has over 24 years of experience, with the last 17 focusing on Cardiac subspecialties.

In 2014, Sheryl began working with Daniel Lenihan, MD who was one of the Cardiologists at VHVI that specialized in the care of patients with amyloidosis in their Vanderbilt Amyloidosis Multidisciplinary Program (VAMP), at Vanderbilt as his clinic nurse.

She attended the American Association of Nurse Practitioners Conference (AANP) in June 2017 as a volunteer for the Amyloidosis Foundation and looks forward to attending more conferences in the future.

Sheryl joined the Board of Directors of the Amyloidosis Foundation in 2017. She is married and enjoys cooking, gardening and her favorite exercise is walking.

Mark Sutherland is a Financial Advisor/CFP, CRPC with LPL Financial in Southfield, Michigan. He attended Michigan State University, where he graduated with a B.A. in Business Administration in 1979.

Mark has supported the AF for many years, attending our annual golf outing events. He began working with AF President Mary O’Donnell and Treasurer Dante Burchi regarding investment recommendations for the foundation since 2015. He became a member of the Board of Directors in 2017.

Great to have you both on our team! AF

Patient Resources

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Our comprehensive website has information for patients, caregivers and physicians featuring:
- Treatment Centers (US / International)
- Support Groups (CA, TN, WA)
- Newsletters
- Webinars
- Fundraising Toolkits

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President's Corner

I hope you all enjoyed your holidays with friends and family.

As we begin 2018, I am proud to welcome two new members to our Board of Directors, Sheryl Kernodle, RN and Mark Sutherland. Both share our passion to find a cure for amyloidosis. We’ve included their biographies and photos in this issue.

Thanks to all of our donors who gave in 2017, our total contributions are up over 29%! You are the reason we are able to carry out the mission of the Amyloidosis Foundation: supporting patients and families while promoting research, education and awareness. This year we will be celebrating our 15th anniversary! More details on how you can help us celebrate will be coming soon.

Have a happy and healthy new year,
Mary E. O’Donnell

2018 Amyloidosis Foundation Webinar:

“ATTRwt Cardiac Amyloid: Often Overlooked, Not Uncommon and Manageable”

Mathew S. Maurer, MD

Wednesday, February 7
3 p.m. (EST)

Register on our website: www.amyloidosis.org

Mathew S. Maurer, MD, is the Arnold and Arlene Goldstein Professor of Cardiology and Professor of Medicine at Columbia University Medical Center. A general internist and geriatric cardiologist with advanced training in heart failure and cardiac transplantation, he has received grants from the National Institute on Aging to study cardiovascular changes in older patients and specializes in the care of patients with heart failure and a preserved ejection fraction, including patients with amyloidosis.
2018 Amyloidosis Foundation Research Grant Recipients

The Amyloidosis Foundation is proud to announce our 2018 research grant awardees, whose research targets the challenges in the field of amyloidosis.

We look forward to their success and hope for a cure in the near future.

**Celia Torres Arancivia - PhD**
Age-Related Cardiac Amyloid Disease (ATTRwt)
Amyloidosis Foundation David Seldin, MD, PhD
Memorial Research Grant, 2018
Boston University Amyloidosis Center

**Matteo de Rosa - PhD**
A New Route to the Development of Therapeutics
Amyloidosis Foundation Research Grant, 2018
National Research Council, Italy, Medicine Division: X-Ray Crystallography & Structure-Based Drug Design

**Luke Berchowitz - PhD**
A New Platform to Discover the Genes Involved in Amyloid Formation
Amyloidosis Foundation Donald C. Brockman
Memorial Research Grant, 2018
Columbia University Medical Center, New York

**Mario Nuvolone - MD, PhD**
Investigating New Therapies to Treat AL Amyloidosis
Amyloidosis Foundation Research Grant, 2018
University of Pavia, Italy, Medicine Division: Amyloidosis Research and Treatment Center

**Surbhi Sidana - MBBS**
Understanding the Composition and Mechanism of Amyloidogenesis in Light Chain Amyloidosis
Amyloidosis Foundation Research Grant, 2018
Mayo Clinic, Medicine Division: Hematology

**Alexandra Silva - B.S, Chemistry, PhD**
Assessing Efficiencies in Machado-Joseph Disease (MJD) Therapies
Amyloidosis Foundation Research Grant, 2018
Instituto de Biologia Celular e Molecular, Portugal, Medicine Division: Biomolecular Structure and Function Group
Advocating for amyloidosis

On September 13, 2017, our Special Projects Director, Kathi Luis, represented the Amyloidosis Foundation at the 2017 Global Genes Summit in California.

The goal was to learn about how pharmaceutical/biotech companies collaborate with nonprofit foundations and patient communities to ease the burden of patients participating in clinical trials. Says Kathi, “I was inspired by every patient, advocate, and fellow industry representative - it was truly a great conference that inspired me to act”.

While at the conference, she rallied for medical research with the National Institute of Health (NIH) by emailing her senators and state representatives, giving rare disease patients a voice in Congress.

The AF is also a member of the Rare Disease Legislative Associates (RDLA) and Kathi is part of the Rare Disease Regulatory Science Working Group in the Community Congress.

The annual meeting was held last November in Washington D.C. and she participated in the Rare Disease Congressional Caucus Briefing to advocate with the RDLA on the challenges rare disease patients face. At this caucus, they urged members of Congress to support the OPEN ACT (Orphan Product Extensions Now, Accelerating Cures and Treatment), which would potentially double the number of treatments approved by the Food and Drug Administration (FDA) for rare diseases.

While in Washington D.C., Kathi also attended the RareVoice Awards to recognize and celebrate advocates in the rare disease community who have made an impact at the state or federal level. On her last day, she went to the Community Congress Annual In-Person Meeting, where the Regulatory Science group focused on payers and access. They discussed the gap between the FDA approval of a new therapy and the ability of patients to access it. During this meeting, Kathi learned of current legislative initiatives and activities plus urgent policy issues standing between rare disease patients and treatments.

The Amyloidosis Foundation is committed to partnering with these nonprofit patient organizations in the future to spread amyloidosis awareness and make sure patients are involved in decisions that affect their future. AF

To make a donation to the Amyloidosis Foundation, go to www.amyloidosis.org or scan the QR code (right) if you have a QR reader on your smart phone.

Thank you for your support.
Fundraising Update

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On November 4, Shawn Forman ran the 36th Annual Mountain Masochist 50 Mile Ultra Marathon with his best friend Joe to raise money and awareness for the AF. They ran in memory of Shawn’s mom Kathy who passed away in 2011. They finished in under 10 hours and raised over $1650!

Pennsylvania to Georgia. We are so thankful for the support of everyone who participated in this annual day of giving. AF

Thank you to our generous donors!

#GivingTuesday

This year the AF raised over $10,000 on #GivingTuesday, November 28. Donations came from near and far - Poland to California.

What is Wild Type TTR Cardiac Amyloidosis?

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* the increasing age of the population (as people live longer, there is a larger cohort at risk for developing the condition),

* the use of non-invasive imaging techniques, especially nuclear scintigraphy, to diagnose the condition without the need for a heart biopsy and

* the appreciation that 10-20% of patients with heart failure, particularly in the setting of a preserved ejection fraction (which is a measure of the pumping function of the heart) can have ATTRwt

In fact, due to the aging of the worldwide population, it is anticipated that ATTRwt will become overall the most common form of systemic amyloidosis.

How is the diagnosis made?

In the past, diagnosis of ATTRwt cardiac amyloidosis required a cardiac biopsy to confirm that not only was amyloid present but that the protein causing the amyloid deposits was transthyretin.

Also required were special stains or use of a microscopic laser to dissect the amyloid fibrils.

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Wild Type TTR Cardiac Amyloidosis

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chop up the protein and to
determine its origin (called
laser dissection mass spectroscopy).

More recently, a relatively
simple imaging test that em-
ployed an isotope called tech-
netium pyrophosphate (Tc-99-
PYP) (which was used for many
decades to image bone) can
diagnose TTR amyloidosis
without a biopsy. The PYP scan
needs to be coupled with
blood tests to make certain
that it is not a case of AL or
light chain amyloid.

Finally, to confirm that the
transferrin protein does not
have any mutations (e.g. is
wild type) a genetic testing of
the TTR protein needs to be
performed.

How does wild type TTR
cardiac amyloid manifest?
Symptoms can be explained
by their underlying heart con-
dition. Such symptoms include
fatigue, inability to exert much
effort, shortness of breath, pal-
pitation, loss of consciousness,
swelling (edema), abdominal
bloating or an inability to lie
flat because of shortness of
breath.

There is a pre-symptomatic pe-
riod in which patients may be
diagnosed with this condition
because of amyloid detected
by a biopsy during a
different examination (carpal
tunnel release/surgery or lum-
bar spine surgery or in the gas-
trointestinal tract). Such pa-
ients may have evidence of
cardiac amyloidosis based on
cardiac testing including an
electrocardiogram or
echocardiogram.

How is wild type TTR cardiac
amyloidosis managed?
The key to managing this
condition is to keep the fluid
retention under control,
maintaining a normal
amount of fluid in the body,
which is called euvolemia.
This is accomplished by
monitoring one’s weight on
a daily basis.

For changes in weight that
are significant (usually 2-3
lbs depending on one’s
body size) and occur
quickly (over a few days),
patients are encouraged to
contact their providers. In
these situations, medication
adjustments, usually diuret-
ics, can remove the excess
fluid in the body relatively
quickly and improve one’s
symptoms. It is important to
eat a low sodium diet in the
setting of cardiac amyloid,
because the more salt is
consumed the more fluid is
retained.

Additionally, some medica-
tions, especially non-
steroidal anti-inflammatory
drugs, which are used to
treat pain, can exacerbate
fluid retention in patients
with cardiac amyloidoses.

Are there treatments specifi-
cally for ATTRwt cardiac
amyloidosis? At present,
there are no specific treat-
ments for this condition that
have been absolutely
shown to make one feel
better or live longer.

However, medical manage-
ment including careful use of
diuretics and other cardiovas-
cular medications can be
beneficial. For patients with
atrial fibrillation (an abnormal
heart rhythm) it is important to
take an anticoagulant to pre-
vent a stroke. Additionally, in
some patients, restoration of
sinus rhythm for patients in atrial
fibrillation is quite beneficial. It is
also important to avoid certain
medications including the use
of some calcium channel
blockers (such as verapamil
and diltiazem).

Of note, there are a host of
emerging therapies for this
condition that are either in
phase 3 trials (e.g. if they work
they may be approved by the
FDA) or are entering into
clinical trials.

All affected patients are en-
couraged to consider enrolling
in a clinical trial. You can find
out about these trials by look-
ing at www.clinicaltrials.gov.

These emerging new treat-
ments can be described as
belonging to one of three
categories: 1) those that
attempt to stabilize the protein,
and thereby would prevent the
disease from progressing; 2)
those that silence the produc-
tion of the protein in the liver,
which would also keep the dis-
ease from progressing, if they
work; and eventually, 3) it is
hoped that an agent will be
developed that can be shown
to remove the protein build-
ups in the condition.

Remember that none of these
potential treatments have yet
been proven.
From ours to yours

HAPPY NEW YEAR

2018

amyloidosis foundation

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