Familial Amyloidosis

What Does it Mean for Your Family?

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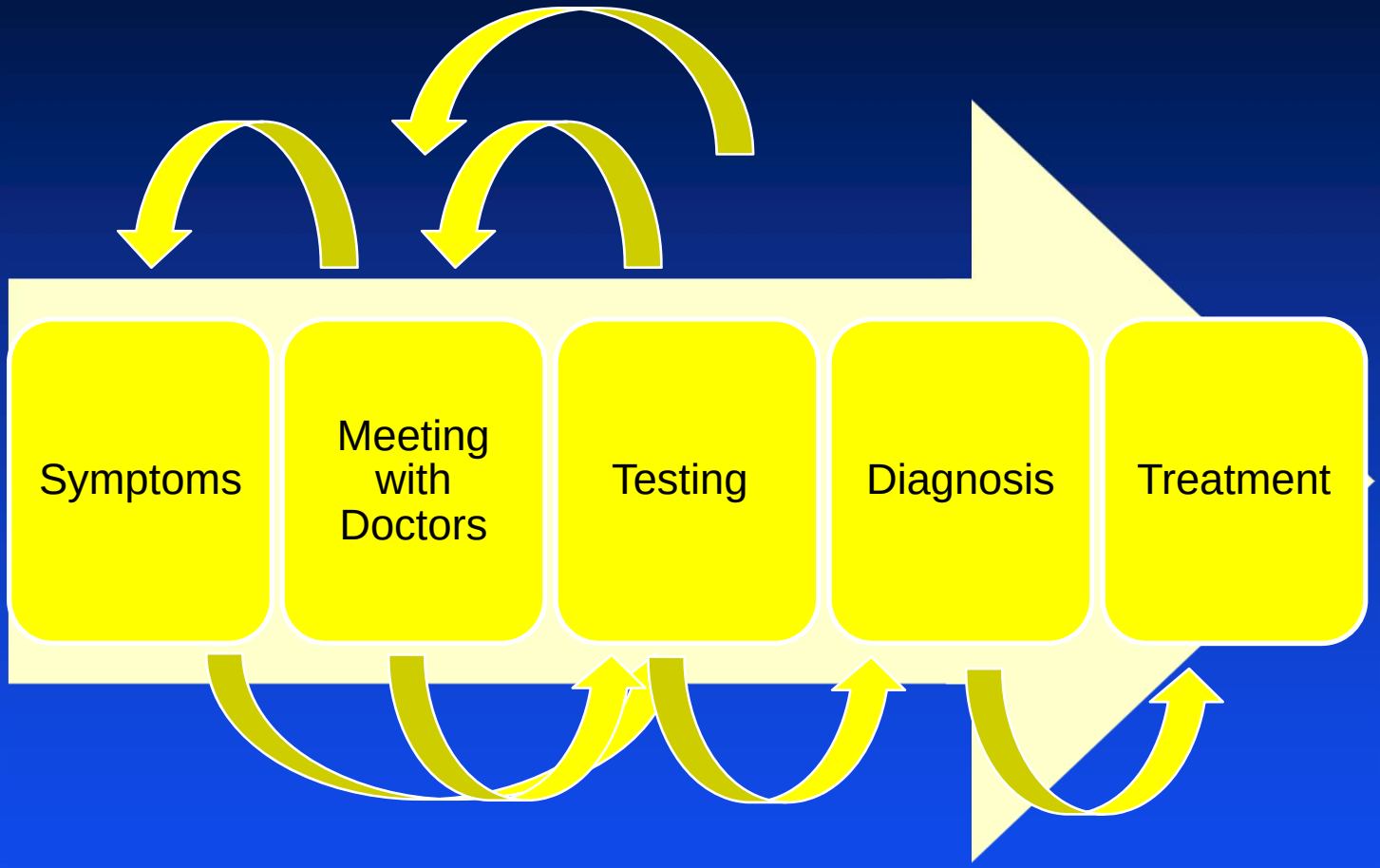
The Journey


Symptoms
Meeting with Doctors
Testing
Diagnosis
Treatment

Familial Amyloidosis

How do I tell my family?

How will they react?

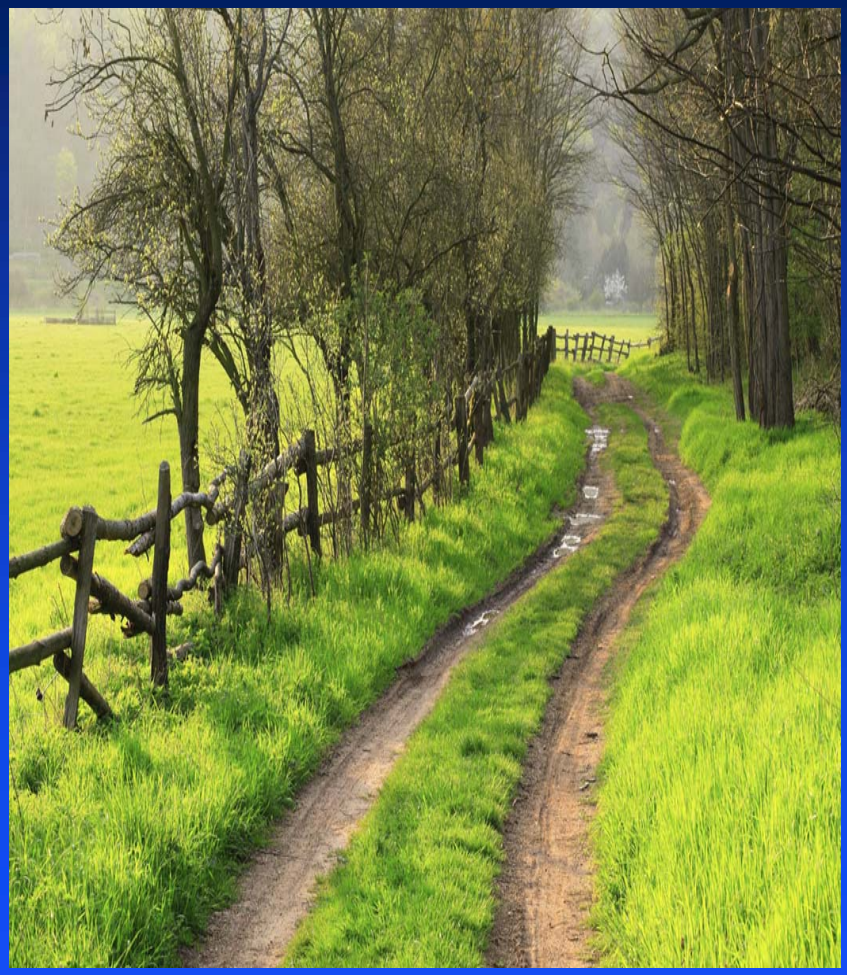
How did I get this?

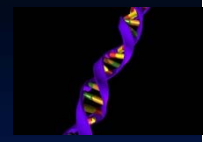
What does Val30Met mean?

Who in my family is at risk?

Roadmap

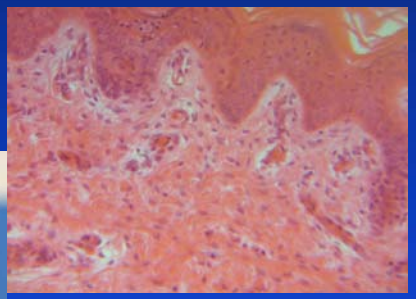
- HOW and WHY
  - Genetics of Familial Amyloidosis
- WHO'S at RISK
  - Describe how Familial Amyloidosis passed on
- COMMUICATION
- GENETIC TESTING

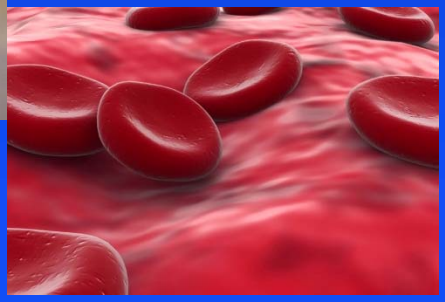




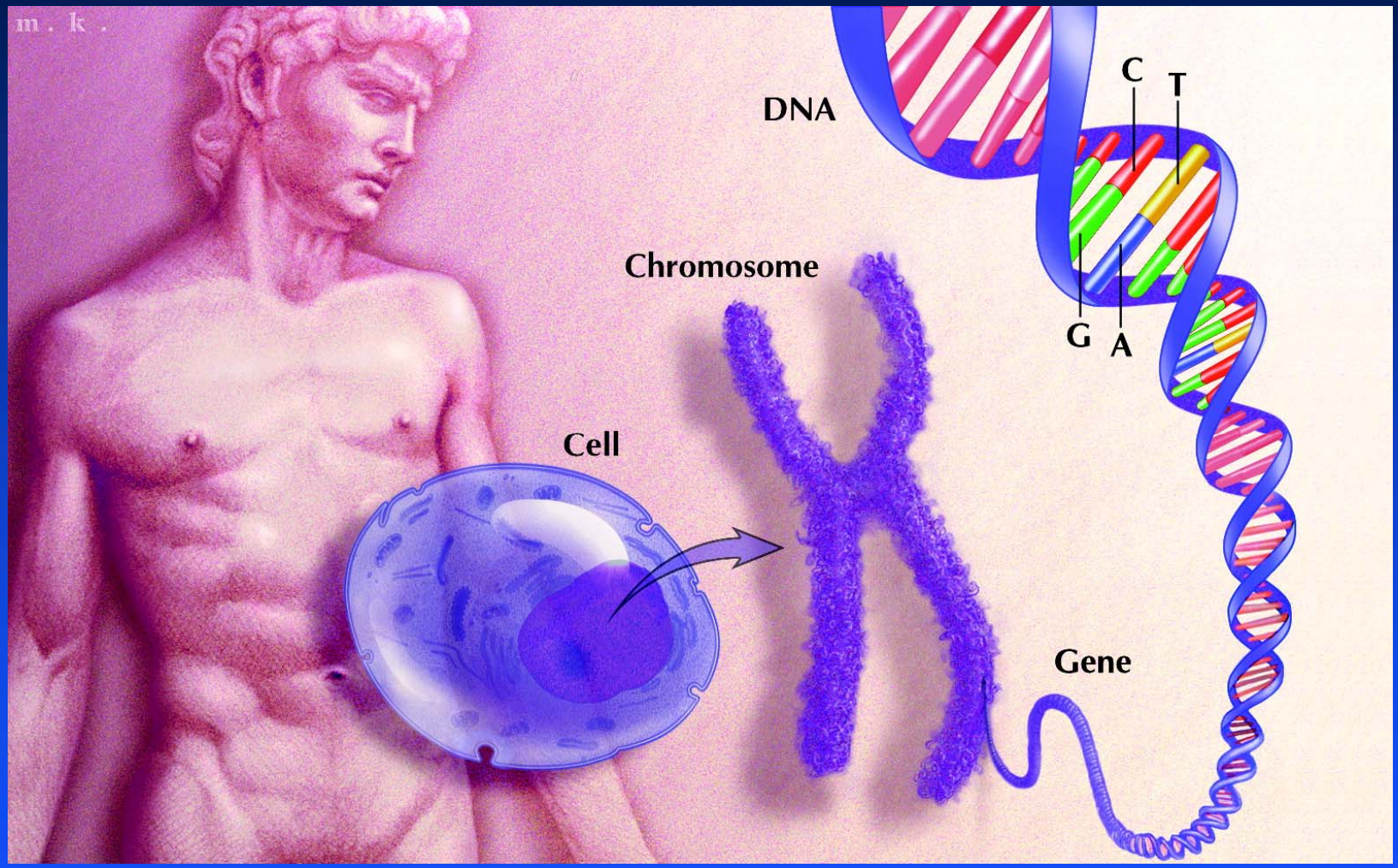
Genetics – Back to the Basics

- Our bodies are made of millions of cells





Cells and DNA



DNA and Genes

- GENES are made up of special sequences of DNA
- Genes code for the proteins in our body that do the work
- GAT CCT GCA TAC GAT

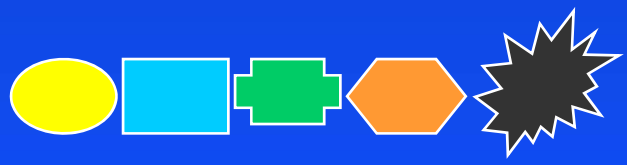
Mutations

- **DNA changes result in changes in protein**

- THE CAT ATE THE RAT

- THE CAT ATE THE MAT

- THE CAT ATE THE RRT



Example: Pigment

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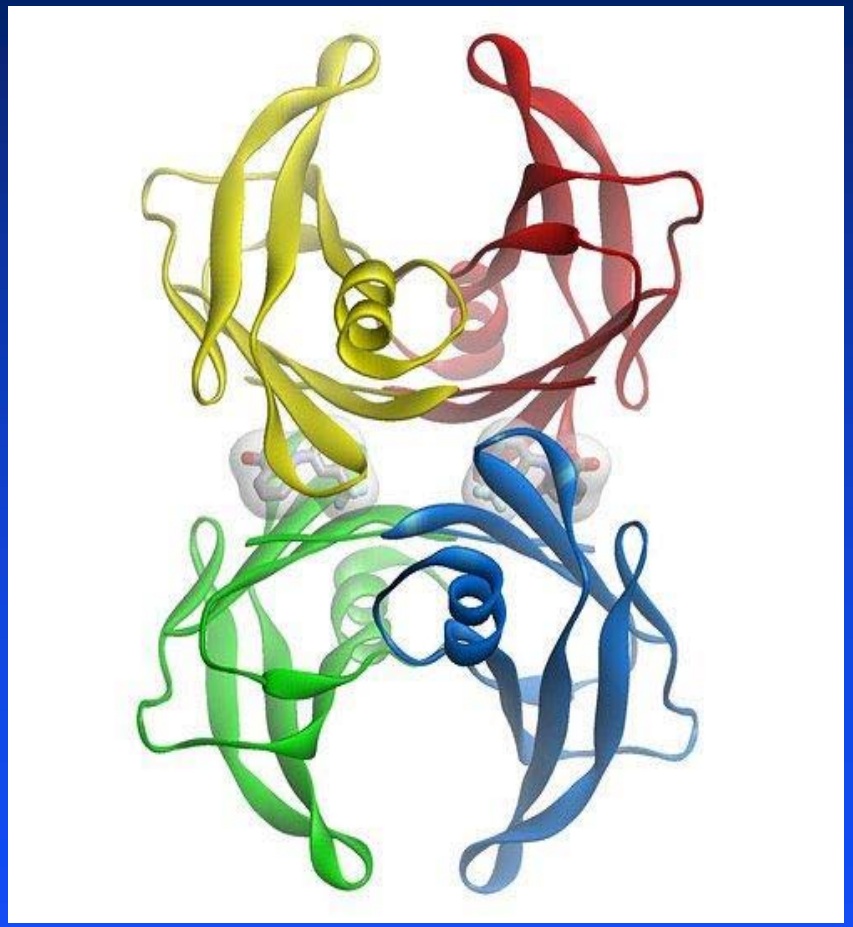
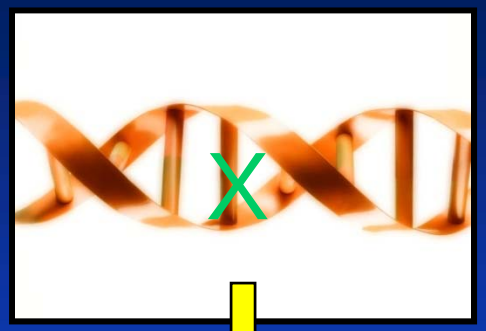
Genetics of Familial Amyloidosis

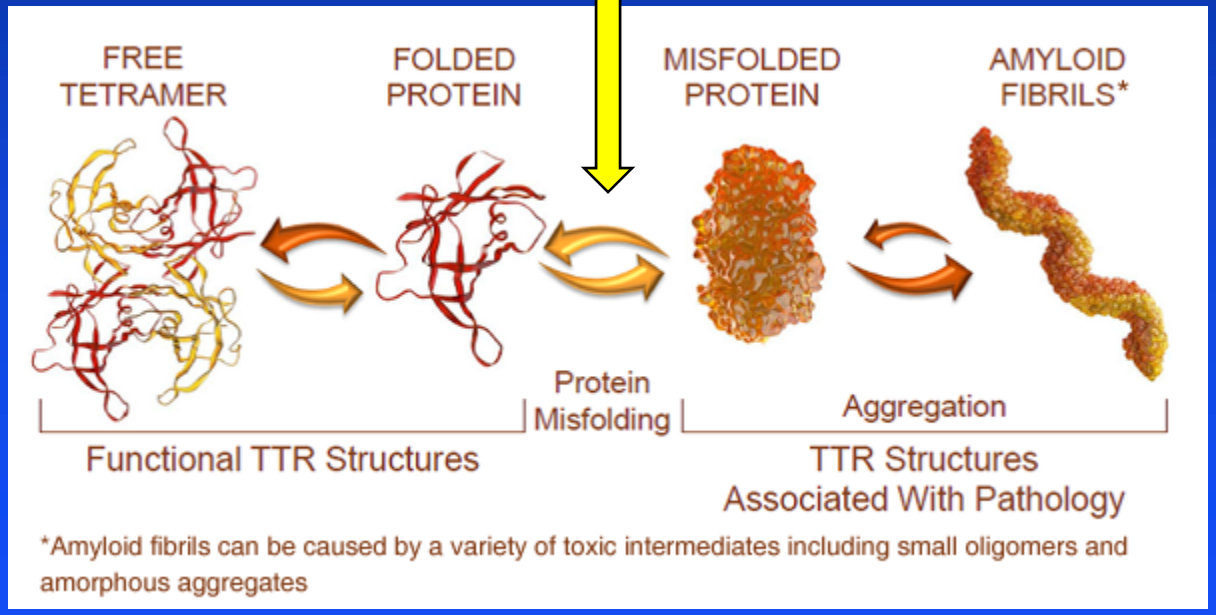
- Transthyretin (TTR)
- Carries thyroid hormone and retinol
- Soluble – able to be dissolved



How did I get FA?

DNA Changes can Lead to FA

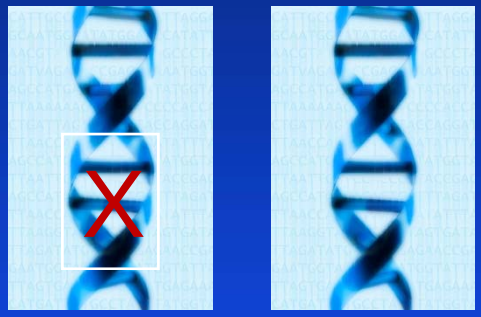




http://www.thaos.net

Genetics of FA

- We all have 2 copies of all of our genes, including TTR, GSN, APOA1



- Dominant Inheritance
  - A mutation in 1 of the 2 copies is enough to cause condition

What's in a Name

What does Val30Met mean? (c.148G>A)

DNA

140 148

GTG GCC GTG CAT GTG

Protein

Valine (Val or V)

GTG GCC GTA CAT GTG

Methionine (Met or M)

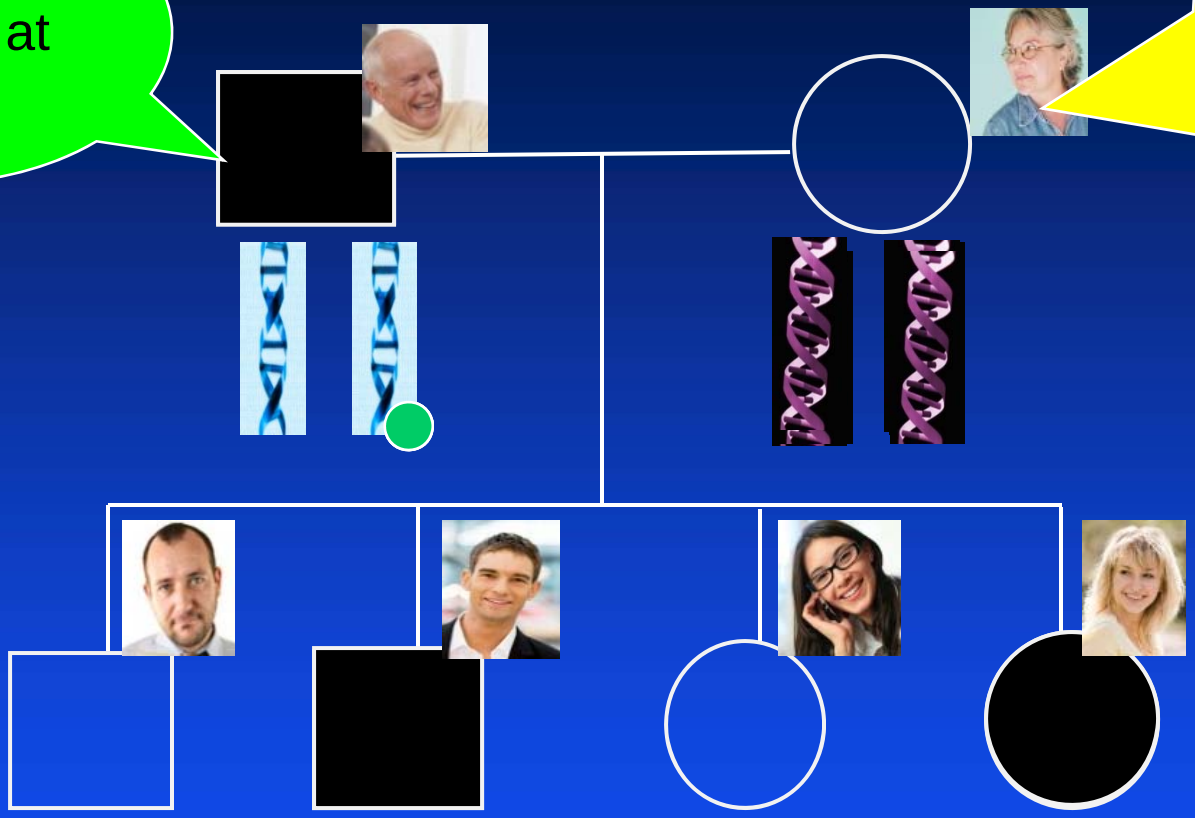
What's in a Name

- Over 100 different mutations
- Specific code change may provide information about symptoms
  - T60A – Heart & autonomic nerves
  - V30M – Peripheral and autonomic Neuropathy
  - V122I – Cardiac
- Same mutation exist in a given family

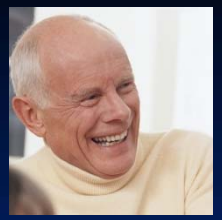
FA is a Family Condition

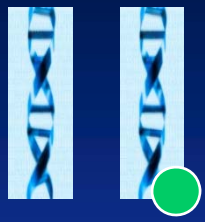
Who in the family is at risk?

All the kids have a 50% chance of inheriting the gene with the mutation

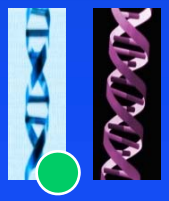


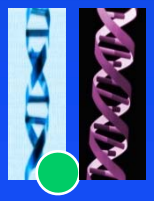
Genetic Testing for Family Members





- No mutation found
- Did not inherit mutation
- Further evaluations not needed





- Mutation identified
- Inherited mutation from father
- Seek care with physician and team
- Continue with regular evaluations

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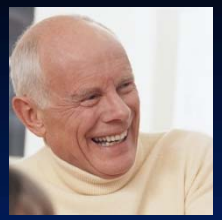
Who else is at risk?



- All first degree relatives of person with FA
  - Children
  - Parents
  - Brothers and Sisters
- Symptoms of FA are variable
  - Age
  - Symptoms
  - Severity

Should a person with FA have genetic testing?

- Part of diagnostic work-up
- Important in understanding cause of Amyloidosis (inherited or not)
- May provide information about what to expect medically
- Will impact treatment and eligibility to clinical trials
- Necessary to determine prior to genetic testing other family members

How do I tell my family?
How will they react?

Family Communication

- Understand the condition yourself
  - Educational info from providers
  - Patient support groups
- Think through how your family members will respond
  - Each will respond differently
  - Each has their own coping mechanism
  - How have they handled other information in the past

Family Communication

- Familial Amyloidosis
  - ~~AL~~ Wild Type ~~Secondary~~ (AA)
- Open the conversation
- Family members will ask questions that are important to them
- You don't have to have all the answers
- Will need more than one discussion

Should my kids have testing, when?

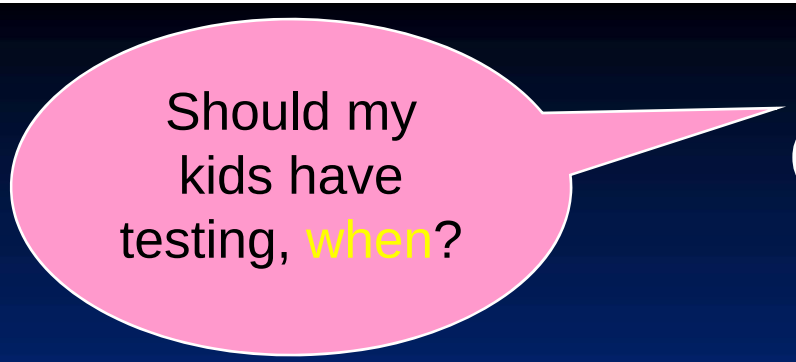
Genetic Testing for Family Members

Benefits

- Determine whether you are at risk or not
- Relief from uncertainty
- Informed decisions about future
- Early recognition of symptoms and intervention

Limitations

- Positive test wont tell if or when symptoms may occur
- May not be any immediate treatments
- May lead to increased anxiety, fear, guilt
- Once you know. You know



Genetic Testing for family members

- When is the right time for testing?
  - "right time" and "right way"
- Adult onset
  - Testing of young children is not advised
- Individual choice; informed decision
  - Take into consideration how information will be used now – will change over time

Making informed decisions about pre-symptomatic testing

- How will I use the information?
- How will I react if my test confirms that I am at risk?
- How will I feel if I am not at risk?
- How will my family react if some of us are found to be at risk and some are not?
- Am I able to handle the medical and psychological impact of a positive result?
- Is now the right time?

Testing Logistics

- Blood Draw or Cheek Swab
- Only looking at FA related genes
- Cost ~ $800-$1000 (TTR)
- Family specific testing ~ $400-500
- Results 2-3 weeks
- Set up appropriate time for results

Insurance Concerns

- Will my insurance cover it?
  - Possibly
- Will my health insurance raise my rates or deny coverage?
- Will my employer discriminate against me?
  - No – Protected by Federal Law (GINA)
  - Note: Life insurance not covered by this law

Summary

- FA is inherited and can be passed on to the next generation
- Take the time to understand the condition
- Communicate with Family and Support Systems
- Genetic testing is an option for family members
- Work with professionals who understand FA
- Learning and understanding never ends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