

Bob's Journey into the World of Rare Diseases

BOB RITER

PERSONAL GENOMICS AND MEDICINE – SPRING 2017

History

Odd rashes occur beginning at age 22 (approximately once a year)

Diagnosed with breast cancer at age of 40

- When I was diagnosed, genetic testing wasn't routine. Today, they would suspect and test for a BRCA2 mutation.

Rashes becoming more frequent and more extensive during the last few years.

Distinctive rashes

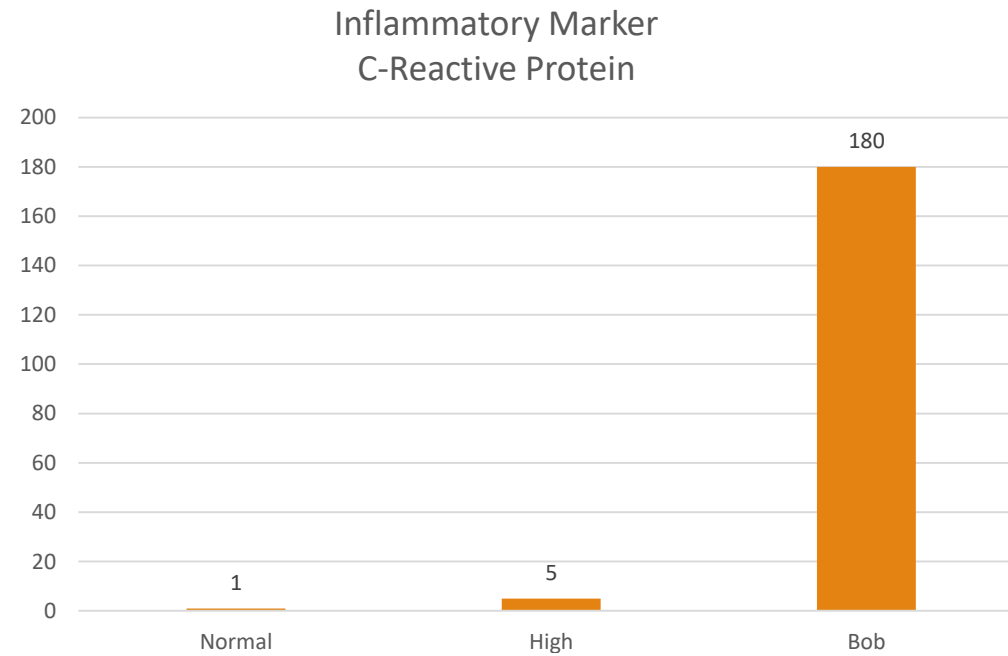


Peeling skin on hands and feet



Inflammation

C-Reactive Protein (a measure of inflammation)



Who to see?

Primary Care Physician

Dermatologist

Allergist

Rheumatologist

And they all say, “Wow. That’s quite a rash.”

Most doctors...

Have never seen a patient with a periodic fever disorder.

Even most rheumatologists never see patients with periodic fever disorders.

Only a handful of doctors specialize in these disorders.

- The National Institutes of Health (NIH) is the epicenter of research and treatment.

National Institutes of Health



NIH

Only treats patients as part of a clinical trial.

You can't just show up. You have to be accepted into a study.

Many of the trials focus on the “Natural history” of rare diseases.

All care is provided free of charge.

The NIH challenge

I have a clear phenotype. What's the genotype that goes with it?

Vibratory urticaria?

The NIH discovered that I have a condition in which vibrations cause me to break out in hives. (They test for this by placing one's arm on a laboratory vibrator). Could this be connected to my rashes?

Probably not, but it was an interesting red herring.



Googling “Weird Rashes” in the hopes of discovering someone with a similar rash



Periodic Fever Disorders (Autoinflammatory Disorders)

Repeated episodes of fever and general feeling of being unwell

Rashes

Swollen joints

The patient may recover, usually within a few days, without any clear cause being identified.

Patients often struggle for years without a diagnosis.

We now know that most are caused by genetic mutations.

Some Known Periodic Fever Syndromes

Familial Mediterranean Fever (the most common)

Tumor Necrosis Factor Receptor Associated Periodic Syndrome (TRAPS)

Cryopyrin Associated Periodic Syndrome (CAPS)

- Familial cold autoinflammatory syndrome
- Muckle Wells Syndrome
- Neonatal-onset multisystem inflammatory disease (NOMID)

Periodic Fever, Aphthous stomatitis, Pharyngitis, and Cervical Adenitis (PFAPA)

Most patients (including me) are unclassified. That is, I have a *clinical* diagnosis of a periodic fever syndrome, but the genetic mutation hasn't yet been identified.

Autoinflammatory vs Autoimmune

Autoinflammatory Disorders (Periodic fever disorders)

A problem with the *innate* immune system

Always on alert. Non-specific. Body acts like there is an infection present, but there isn't.

Rare

Autoimmune Disorders

A problem with the *adaptive* immune system

Body is usually able to distinguish if an invader is friend or foe, attacking only foes.

In autoimmune disorders, the body mistakenly attacks friends (healthy tissue).

Much more common (e.g., Lupus, Rheumatoid Arthritis, Multiple Sclerosis)

A brief video

[Periodic Fever Disorders](#)

Genetic Testing

I was initially tested in Ithaca for one suspected genetic mutation

Doctors who specialize in periodic fever disorders now routinely test for 7-28 mutations

At the NIH, I was tested for approximately 250 known mutations linked to periodic fever syndromes. (none matched).

Now doing Whole Exome Testing – takes 12-18 months

- Variants of Unknown Significance?
- Incidental findings?

A mosaic condition?

- We learn in most biology classes that our DNA is the same in all of our cells. If you have a genetic mutation in one cell, every other cell will have that same mutation.
- But there are mosaic conditions in which only some cells have that mutation, often causing the phenotype to be milder.
 - e.g., Mosaic Down syndrome
- Some speculation that I might have a mosaic form of a periodic fever syndrome.

How do you know you're one in a million? (comments from patients)

- Your ER doctor googles your condition, after first asking you how to spell it.
- The genetics report says, that the mutation you have has never been noted (de novo mutation)! You are 100% unique because no one else has your exact mutation.
- A disease is defined as rare in the U.S. if it affects less than 200,000 Americans. Some autoinflammatory diseases are so rare, less than 100 are known in the U.S.
- When you have to fight the insurance for almost every test and medication you need, because most are considered “experimental.”
- When you go to an appointment at a teaching hospital, and every single medical student doing a rotation in that particular clinic also attends the appointment, because it may be the only time they ever see that disease in their career.

Read more at: <http://saidsupport.org/how-do-you-know-youre-one-in-a-million/>

Autoinflammatory Alliance

Welcome to the Autoinflammatory Diseases-Rare But Not Alone! Facebook Group

Created and Moderated by:

www.autoinflammatory.org

blog: www.saidsupport.org

twitter: @AAlliance_SAID

email: karen@autoinflammatory.org



**AUTOINFLAMMATORY
ALLIANCE** formerly known as
The NOMID Alliance

Dedicated to promoting awareness,
improved care and treatment for patients
with autoinflammatory diseases.

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