

Cryopyrin-Associated Periodic Syndromes (CAPS)

Other Autoinflammatory Periodic Fever Syndromes (PFS)

NOMID/CINCA

MWS

FCAS/FCU

FMF (Familial Mediterranean Fever)

TRAPS (TNF Receptor Assoc. PFS)

HIDS (Hyper IgD PFS)

	NOMID/CINCA	MWS	FCAS/FCU	FMF (Familial Mediterranean Fever)	TRAPS (TNF Receptor Assoc. PFS)	HIDS (Hyper IgD PFS)
GENES & INHERITANCE	<i>NLRP3/CIAS1/NALP3</i> Autosomal Dominant Spontaneous mutations, few familial cases. ¹	<i>NLRP3/CIAS1/NALP3</i> Autosomal Dominant Spontaneous mutations, some familial groups. ¹	<i>NLRP3/CIAS1/NALP3</i> Autosomal Dominant Large familial groups, some spontaneous mutations. ¹	<i>MEFV</i> Autosomal Recessive Most common inherited periodic fever syndrome. ¹	<i>TNFRSF1A</i> Autosomal Dominant Spontaneous mutations, some familial groups. ¹	<i>MVK</i> Autosomal recessive
ETHNICITY	Any—present in all races. ¹	Affects all races, but many of European descent. ¹	Affects all races, but most are of European descent. ¹	Turk, Armenian, Arab, Sephardic Jew, or Italian. ¹	Any—present in many diverse races. ¹	Mostly of Dutch descent, or Northern European. ¹
FREQUENCY OF THE MUTATION IN THE WORLD	Estimated frequency 0.001=1:1 million—possibly 7,000+ w/ CAPS mutation in world. ⁵	(see NOMID) 1:1 million, maybe more due to some family groups. ⁵	1:1 million, or more. In USA 300+ diagnosed—most in large family groups. ^{2,5}	In specific ethnic groups, carrier frequency of <i>MEFV</i> variants is up to 1:5 people. ¹	Unknown—over 1000 patients worldwide. (from TRAPS info at http://ghr.nlm.nih.gov)	Unknown >200 known patients so far on HIDS registry (www.hids.net).
TIMING OF SYMPTOMS OR ATTACKS (FLARES)	Continuous w/ increased symptoms during flares. ¹	Often lasts 2-3 days, random onset—some pts. flares triggered by cold temperature. ¹	12-24 hours— Onset 1-3 hr. after exposure to cold or cooling temperatures. ¹	12-72 hours ^{1,9}	Days to weeks. Average flare is 3 weeks. ^{1,9}	3-7 days, recurrent bouts every 2-12 weeks. ^{1,9} Some flares occur after vaccines. ⁹
AGE OF ONSET	Neonatal/early infancy. Rash, symptoms, abnormal labs often at birth. ^{1,6}	Infancy, but a few present w/ symptoms later in childhood or adolescence. ¹	Infancy ¹	Infancy, to under 20 years of age for the first symptoms. ⁹	Most first attacks by 3 yrs, almost all begin by 20 yrs of age, a few start later in life. ⁹	>90% present with symptoms in infancy. ⁹
SYSTEMIC FINDINGS						
SKIN/CUTANEOUS	Ever present ¹ Urticaria-like rash w/increased neutrophils at the eccrine coils. Rash increases w/ flares. ⁴	Urticaria-like rash w/ increased neutrophils at the eccrine coils. ⁴ Almost daily rash —increases w/ flares. ¹	Cold induced Urticaria-like rash w/ increased neutrophils at the eccrine coils. ⁴ Many w/ daily rash. ¹	Erysipeloid erythema on the ankle—foot—below knee region, lasts 2-3 days during flares of symptoms. ¹	Migrating rash w/ deep pain under rash areas. Severe pain follows the rash path from the trunk out to limbs. ⁹	Diffuse maculopapular rash. Some w/ petechiae or purpura present. A few w/ aphthous ulcers. ^{1,9}
NEUROLOGIC	Headaches, fever, chronic aseptic meningitis, high CNS pressure. Many w/ mental &/or cognitive impairments, papilledema common. ⁶	Some have headaches with fever & flares. Uncommon to have many other CNS symptoms. ¹	Some have headaches with fever after cold exposure. Unknown if there are notable CNS affects at this time. ¹	Fevers. Acute aseptic meningitis is rare and can occur during flares, but is never chronic. ¹	Fevers lasting >3 days at over 38° C w/ flares. Some have headaches w/ flares of symptoms. ^{1,9}	Headaches & fevers w/ flares of symptoms are common. ^{1,9} More severe neurologic symptoms are rarely present in HIDS. ⁹
AUDITORY	Many have increased sensorineural hearing loss, from infancy/childhood. ^{1,6}	Many have increased sensorineural hearing loss, starting in adolescence. ¹	Some pts have mild hearing loss—not currently known if it's from CAPS inflammation. ¹	Uncommon—not believed to be caused by FMF disorder. ¹	Uncommon—not believed to be caused by TRAPS. ¹	Uncommon—not believed to be caused by HIDS. ^{1,9}
OPHTHALMIC	Papilledema, uveitis, iritis, conjunctivitis. Some w/ corneal haze or vision loss. ⁶	Conjunctivitis (non-infectious) episcleritis during flares, or corneal haze. ¹	Conjunctivitis (non-infectious) during flares. ¹	Very rare to uncommon. ¹	Conjunctivitis , & periorbital edema during flares. ^{1,9}	Very rare to uncommon. ⁹
CARDIO-PULMONARY	Some cases of pericardial effusions, or pericarditis. ¹	Rare ¹	Not noted ¹	45% have pleuritis, painful respiration, w/ flares. Some w/ pericarditis. ¹	Common, including pleurisy ¹	Rare ¹
ABDOMINAL	Nausea & vomiting, pain w/ flares, or high CNS pressure. ⁶	Some have abdominal pain w/ flares or other GI issues. ¹	Uncommon ¹	Sterile peritonitis, pain, &/or constipation w/flares. ¹	Peritonitis, diarrhea, & constipation w/ flares. ¹	Extreme pain, vomiting & diarrhea w/ flares. ^{1,9}
LYMPHATIC	Some pts. w/enlarged liver and/or spleen, many have large lymph nodes. ¹	Rarely noted ¹	Not noted ¹	Enlarged spleen is common, some have enlarged lymph nodes. ¹	Enlarged spleen common, some have enlarged lymph nodes. ¹	Enlarged cervical lymph nodes common in children. ¹
JOINTS/BONES MUSCLES & CARTILAGE	Joint pain, knee valgus or varus. Some w/ frontal bossing, saddleback nose, contractures clubbing ¹ <50% of pts. knees have bony overgrowth.	Arthralgias, stiffness & swelling with flares. ¹	Arthralgias, stiffness & swelling with flares. ¹	Mono/Polyarthritis, oligoarthritis & clubbing common. Ankle arthralgias common. Severe arthritis of the hip or ankle is rare. ¹	Intermittent or chronic arthritis in large joints, w/ muscle pain & swelling. ¹	Arthralgias common, symmetric polyarthritis frequently noted. ¹
VASCULITIS	Vasculitis rarely develops. ¹	Not noted ¹	Not noted ¹	HSP, polyarteritis nodosa. ¹	HSP, lymphocytic vasculitis. ¹	Cutaneous vasculitis common, HSP is rare. ¹
AMYLOIDOSIS	Elevated SAA Amyloidosis in <2% pts. ^{1,6}	Elevated SAA >25 % w/amyloidosis. ^{1,9}	Elevated SAA Amyloidosis in some pts. ^{1,9}	Common >50% in untreated pts., depends on genotype. ⁹	10-20% occurrence—higher risk w/ cysteine mutation. ⁹	<10%, not common. ⁹
ABNORMAL LABS	Chronically high: ESR, CRP, SAA, anemia, granulocyte leukocytosis. ^{1,6}	High: ESR, CRP, SAA. Leukocytosis, w/ flares. ¹	High: ESR, CRP, SAA. Leukocytosis w/ flares. ¹	High: ESR, CRP, SAA between flares. Fibrinogen, Leukocytosis present w/ flares. ¹	High: ESR, CRP, SAA. Elevated PMNs, polyclonal gammopathy, leukocytosis. ¹	High: ESR, CRP, SAA w/ flares. High IgD w/ IgA in 80% pts. Mevalonate aciduria noted. ¹

COMING SOON!

Full Size Wall Chart Featuring All Known Autoinflammatory Diseases

Also our new CAPS guidebook in Spanish and English will be released next month, as well as other informative materials about other autoinflammatory diseases.

Sign up today to have these materials sent to you, or email us anytime at: karen.nomidalliance.org@gmail.com

NOMID ALLIANCE
nomidalliance.org

References

- Kastner, DL. Hereditary Periodic Fever Syndromes. Hematology 2005 – American Society of Hematology Education. Program. 2005: 74-81.
- Hoffman HM, Mueller JL, et al. Mutation of a New Gene Encoding a Putative Pyrin-like Protein causes FCAS and MWS. Nat. Genet. 2001; 29: 301-305.
- Rosengren S, et al. Monocytes from FCAS Patients Are Activated by Mild Hypothermia. J. Allergy Clin. Immunol. Allergy. 2007; 119 (4): 991-996.
- Huttenlocher, A, Frieden, IJ, Emery, H. Neonatal Onset Multisystem Inflammatory Disease. J. Rheumatol. 1995; 22 (6):1171-3.
- Cuisset, L, et al. Genetic Linkage of the Muckle-Wells Syndrome to Chromosome 1q44. An. J. Hum. Genet. 1999; 65 (5): 1054-59.
- Goldbach-Mansky, R, Dailey, NJ, et al. Neonatal-Onset Multisystem Inflammatory Disease Responsive to Interleukin-1 Beta Inhibition. N. Engl. J. Med. 2006 Aug. 10; 355 (6): 581-92.
- Drenth, JPH, van der Meer, JWM. The inflammatosome – A Linebacker of Innate Defense. N. Engl. J. Med. 2006;355(7):730-732.
- Kazushi, I, et al. Detection of Base Substitution-Type Somatic Mosaicism of the *NLRP3* Gene with >99.9% Statistical Confidence by Massively Parallel Sequencing. DNA Res. 1st pub. online Jan. 24, 2012 doi:10.1093/dnares/dsr047.
- Hoffman, H & Simon, A. Recurrent Febrile Syndromes – What a Rheumatologist Needs to Know. Nature Reviews Rheumatology. 2009 (5): 249-256.