LIVING WELL WITH HAE

Overview and Treatment

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Watch the video: https://haeaustralasia.org.au/resources/video-resources/

WHAT IS HEREDITARY ANGIOEDEMA (HAE)? (VIDEO REF: 00:18)

HAE is a rare genetic disorder. It is inherited as what is called autosomal dominant, which means that if a person with HAE has children they have a 50% chance of carrying that gene and having the condition. It's a condition that causes unpredictable swelling, or what we call angioedoema. It can affect just about anywhere, the periphery, the skin, the subcutaneous tissues, and the gut. Abdominal swelling is one of the very common presentations. And most importantly, it can cause swelling in the upper airway, which can be a life threatening type of swelling.

WHEN DO SYMPTOMS START? (VIDEO REF: 1:04)

HAE is an inherited disorder, so it's present from birth. It's rare for infants and very young children to express problems, but some do start having swellings in early childhood. By the time a child is 9, 10, or 11, most will have started to have swellings. And certainly, from around puberty, the vast majority of people will start to have attacks. There have been cases where swellings haven't started until adulthood, but that's pretty rare. So by the end of childhood, almost all patients will have had at least one swelling.

WHAT ARE THE SYMPTOMS? (VIDEO REF: 1:48)

Symptoms of HAE are those of swelling, so they're unpredictable. People don't know when they're going to happen.

Many have:

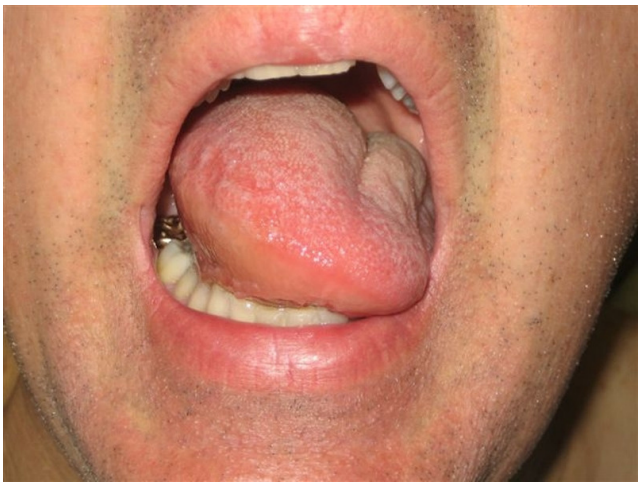
- a warning that they're going to start and it is a slow onset
- get a little bit of pain or tingling, discomfort, tightness
- the swelling builds to a maximum over about a 24 hour period
- and it can take up to two to five days to resolve.

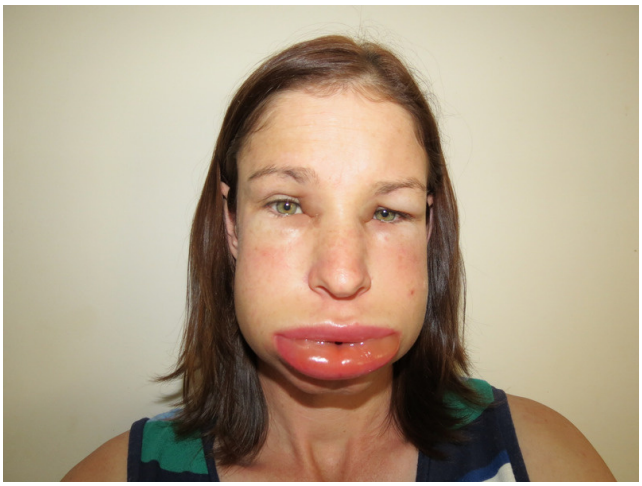
If the swelling is abdominal, symptoms can be:

- crampy colicky pain
- stomach may swell and get hard
- may experience nausea, diarrhoea, vomiting
- in some cases they can collapse because they have so much fluid loss.

Laryngeal (upper airway) swelling is very threatening, and people are aware of it very early, with symptoms of:

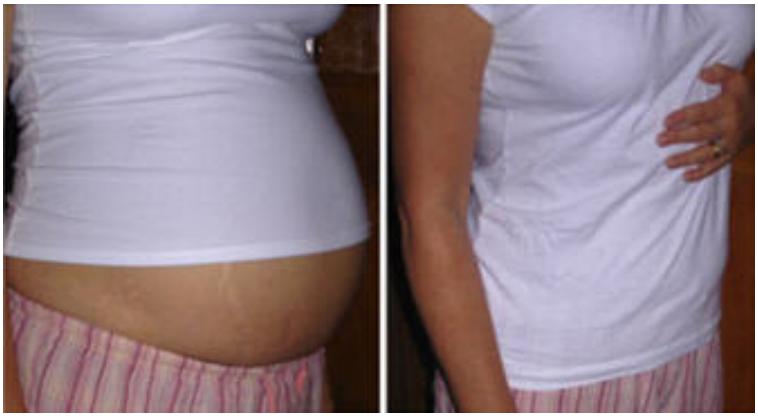
- feeling of a lump in the throat
- difficulty with swallowing
- can impact breathing.





WHERE DO SWELLINGS OCCUR? (VIDEO REF: 3:06)

Almost every patient with HAE will experience a peripheral swelling - a hand, or the foot, or the arm, and over 90% will have abdominal swellings. The laryngeal swellings are the rarest of swellings. Out of all attacks, about .9% are laryngeal. 50% of patients will have at least one laryngeal swelling sometime in their lives, but abdominal and peripheral swellings are far more common.



WHAT TRIGGERS AN ATTACK? (3.42)

Sometimes there is no trigger, they can just happen spontaneously, but for many patients, they recognise triggers.

The common triggers are

- stress - emotional or physical
- trauma - knocks or bangs can cause a swelling at the site
- Infection/fever
- Menstrual period time

There are certain medications that will really enhance swelling

- oestrogen containing oral contraceptive pills
- some high blood pressure medications known as ACE inhibitors

Overall, it's stress, trauma or infection.

DOES HAE PRESENT DIFFERENTLY FOR MEN AND WOMEN? (VIDEO REF: 4:39)

In general, women suffer more than men, because of their hormonal changes, such as

- menarchy (when a girl starts to have periods)
- perimenopause is also a risky time
- pregnancy can have a variable effect on HAE

HOW IS HAE DIAGNOSED? (VIDEO REF: 5:37)

Diagnosis is easy with blood tests that measure a number of components

- the fourth component of complement (C4)
- C1 inhibitor protein level

Then we do a functional assay to see how it works. And those three markers together help differentiate the various types of HAE. The tests are fairly simple and they're readily available in Australia and New Zealand.

WOULD MOST GP'S KNOW ABOUT HAE? (VIDEO REF: 6:12)

HAE is a very rare disorder so many medical practitioners may go through their whole practice having never seen a case. It is however, on the list of differential diagnosis for angioedoema. There are features of this type of angioedema swelling that are different to allergic angioedema, which is by far the more common cause of swelling or angioedema

- the fact that it comes on slowly
- lasting longer is unique to the HAE form of swelling
- the swelling does not respond to the treatments usually given for allergic Angioedoema.

A lot of work has been done on education in the last decade or so to highlight the fact that this is a swelling form, and to think about it. There is effective treatment now, and as it can have life threatening consequences, it's important that it isn't missed.

HOW IS HAE TREATED IN AUSTRALIA AND NEW ZEALAND? (VIDEO REF: 7:17)

There are a number of the modern therapies available. Every patient diagnosed with HAE should have acute treatment available to treat attacks on hand.

Acute treatment (Australia and New Zealand)
Icatibant - a self administered subcutaneous injection best used early in an attack to abort the attack and settle it quickly.
Or
Berinert – an intravenous infusion of C1 inhibitor concentrate

Icatibant is by far more convenient, and the majority of patients can use that.

For long term prophylaxis (Australia only)
Berinert - as a subcutaneous infusion, a replacement therapy that patients can be taught how to do twice weekly. It's highly effective.

Recently available on PBS for long-term prevention
Lanadelumab (Takhzyro) – a syringe for self management.

Long-term prevention
Australia
Danazol – special access only
Tranexamic acid – used more by Paediatricians because of its safety.

New Zealand
Danazol
Stanozolol
Tranexamic acid

Short-term prophylaxis for surgery, invasive dental work, procedures involving instrumentation of the head or neck

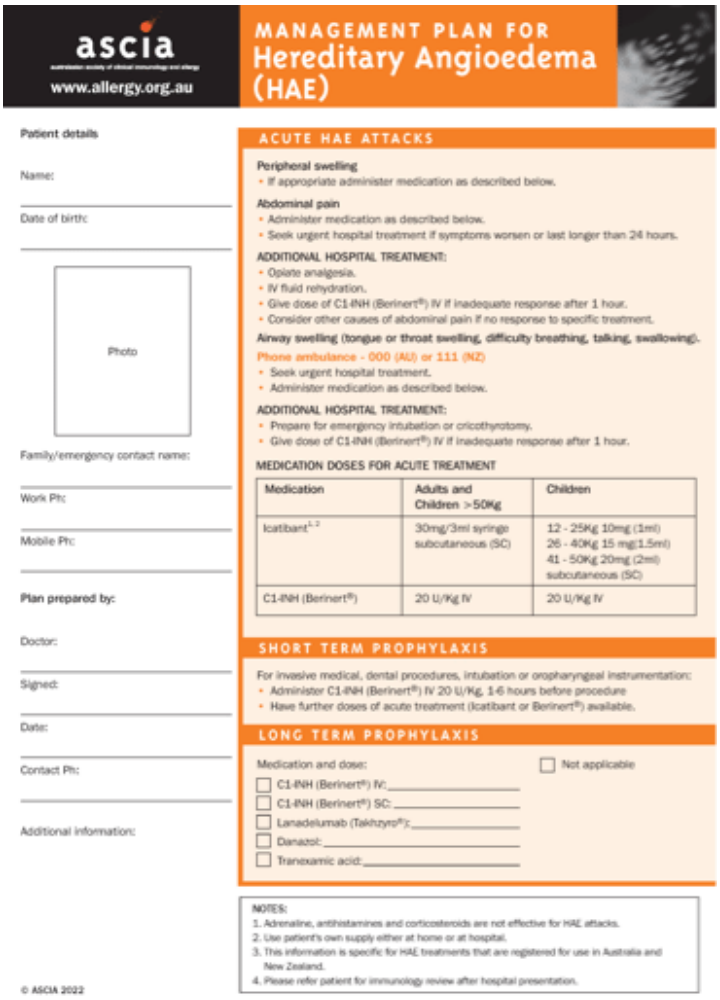
Berinert infusion intravenously prior to procedure.

WHAT OTHER MANAGEMENT ADVICE DO YOU HAVE? (VIDEO REF: 9:36)

Patients need to understand what HAE is, and learn to recognise triggers and how to manage those triggers, because that in itself may reduce the frequency of attacks.

Every patient with HAE needs their own individualised management plan, which is a written document on a recognisable form. It's very useful if they need to present to an emergency department, as doctors will recognise the form and follow the instructions for that individual.

Keeping an assessment of attacks in a diary format, or HAE tracker (https://app.haetrackr.org/) helps patients understand what might be triggering, and gives the doctor a good insight as to the frequency of attacks.



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MANAGEMENT PLAN FOR
Hereditary Angioedema (HAE)

Patient details

Name:

Date of birth:

Photo

Family/emergency contact name:

Work Ph:

Mobile Ph:

Plan prepared by:

Doctor:

Signed:

Date:

Contact Ph:

Additional information:

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ACUTE HAE ATTACKS

Peripheral swelling
- If appropriate administer medication as described below.

Abdominal pain
- Administer medication as described below.
- Seek urgent hospital treatment if symptoms worsen or last longer than 24 hours.

ADDITIONAL HOSPITAL TREATMENT:
- Opiate analgesia.
- IV fluid rehydration.
- Give dose of C1-INH (Berinert®) IV if inadequate response after 1 hour.
- Consider other causes of abdominal pain if no response to specific treatment.

Airway swelling (tongue or throat swelling, difficulty breathing, talking, swallowing).

Phone ambulance - 000 (AU) or 111 (NZ)
- Seek urgent hospital treatment.
- Administer medication as described below.

ADDITIONAL HOSPITAL TREATMENT:
- Prepare for emergency intubation or cricothyrotomy.
- Give dose of C1-INH (Berinert®) IV if inadequate response after 1 hour.

MEDICATION DOSES FOR ACUTE TREATMENT

Medication	Adults and Children >50Kg	Children
Icatibant[1,2]	30mg/3ml syringe subcutaneous (SC)	12 - 25Kg 10mg (1ml) 26 - 40Kg 15 mg(1.5ml) 41 - 50Kg 20mg (2ml) subcutaneous (SC)
C1-INH (Berinert®)	20 U/Kg IV	20 U/Kg IV

SHORT TERM PROPHYLAXIS

For invasive medical, dental procedures, intubation or oropharyngeal instrumentation:
- Administer C1-INH (Berinert®) IV 20 U/Kg, 1-6 hours before procedure
- Have further doses of acute treatment (Icatibant or Berinert®) available.

LONG TERM PROPHYLAXIS

Medication and dose: ☐ Not applicable

- ☐ C1-INH (Berinert®) IV:_____
- ☐ C1-INH (Berinert®) SC:_____
- ☐ Lanadelumab (Takhzyro®):_____
- ☐ Danazol:_____
- ☐ Tranexamic acid:_____

NOTES:
1. Adrenaline, antihistamines and corticosteroids are not effective for HAE attacks.
2. Use patient's own supply either at home or at hospital.
3. This information is specific for HAE treatments that are registered for use in Australia and New Zealand.
4. Please refer patient for immunology review after hospital presentation.