

Singultus (hiccups)

Key Points:

1. Hiccups are usually benign and involve a reflex arc involving the phrenic and vagus nerves, diaphragm, glottis, and intercostals.
2. Work-up should be reserved for patients with intractable or persistent hiccups.
3. Treatment modalities are varied, ranging from anecdotal techniques to phenothiazines, dopamine antagonists, anticonvulsants, and others.

What is a hiccup exactly?

An involuntary, intermittent, spasmodic contraction of the diaphragm and intercostal muscles causing sudden inspiration that ends with abrupt closure of the glottis, making the classic hiccup sound. Normal rate is 4-60 hiccups/minute with regular intervals.

Hiccups are defined as persistent if they last more than 48 hours and intractable if they last more than 2 months (can you imagine?!) Males over age 50 are more likely to have intractable hiccups than females.

What does singultus mean?

Comes from the Latin word *singult*: catching one's breath while sobbing.

What's the pathophys of a hiccup?

Not known if there is any "purpose" to a hiccup. They even occur in utero in the third trimester! Involves a reflex arc of 1) the phrenic nerve, vagus nerve, sympathetic chain 2) a central mediator and 3) phrenic nerve, glottis, and intercostal muscles. The central mediator is thought to involve the respiratory centers, phrenic nerve nuclei, reticular part of brainstem, and hypothalamus. Usually, a hiccup involves one side of the diaphragm, left more than right.

What causes your run-of-the-mill hiccups?

Gastric distention (don't eat so much), carbonated drinks, aerophagia, sudden changes in GI or ambient temperature, lots of EtOH, smoking, sudden excitement or stress.

What causes persistent or intractable hiccups?

Over a hundred causes! Consider the reflex arc for areas of possible etiologies.

- Vagus and phrenic nerve irritation: most common cause.
 - a) Foreign bodies against tympanic membrane can irritate the auricular branch of vagus nerve
 - b) Throat pathology (pharyngitis, laryngitis, neck tumors) can stimulate the recurrent laryngeal nerve. Esophageal candidiasis has been known to cause hiccups in AIDS patients.
 - c) Goiters, mediastinal masses, tumors can tickle the phrenic nerve
- Diaphragm: hiatal hernia, GERD, subphrenic abscess, manipulation during surgery
- CNS disorders: Anything that disrupts the inhibitory hiccup reflex. Can be vascular, infectious, or structural. Consider MS, hydrocephalus, syringomyelia, masses.
- Toxic/metabolic: Can see with anesthesia, alcohol, uremia.
- Psychogenic: Must rule out organic causes first.

Do I need to work up hiccups?

Only if they are persistent or intractable. Do a careful history and physical. Hiccups during sleep suggest an organic cause. Consider CBC, lytes, creatinine, CXR and then other studies based on possible etiology.

Do grandma's remedies work?

Most "techniques" are anecdotal and not based on controlled studies. Some of them may help by interrupting reflex hiccup arc. Consider the following tactics and add your own:

--breathing into bag, swallowing sugar, drinking from the opposite side of a glass, forceable traction on the tongue, biting a lemon, breath holding, fright, noxious odors, ice water gargles, NG tube stimulation, etc.....

-- An interesting study looked at sexual intercourse as a treatment modality (would grandma approve?)

What about medical therapy?

Address underlying cause (ie H2 blocker for GERD). Of note, a retrospective study of all pts with hiccups from 1995-2000 showed no statistically significant effects in therapies. Medicines include:

- chlorpromazine: IV best but can give 25-50mg TID
- metoclopramide: 10mg TID
- baclofen: one study showed resolution in 75% of pts
- anticonvulsants: phenytoin, VPA, carbamazepine
- others: quinidine, amitryptiline, marijuana

What if all else fails?

Try hypnosis or acupuncture (can do early on!). One report showed anesthesia with positive pressure ventilation and muscle relaxants worked. Surgery to crush or block the phrenic nerve or even an implantable breathing pacemaker has been used in some cases! An interesting study looked at sexual intercourse as a treatment modality.....

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