**Respiratory 3 / pathophysiology**

**Management of Upper Respiratory Infections**

- The most common reason for seeking care
- 90% are viral in nature
- May be minor, acute, chronic, severe, or life threatening
- Early detection of sx and appropriate interventions can avoid unnecessary complications
- URI in older adults may have more serious complications when concurrent medical problems are present. Aging changes breathing, decreased sense of smell.

**Rhinitis**

A group of disorders that present with inflammation and irritation of the mucous membrane and nose.

**Types**

1. Non allergic rhinitis: brought on by the common cold. Can occur throughout the year.
2. Allergic rhinitis: can be triggered by; dust, dander, animals, trees, fresh cut grass, foods (nuts/fish/eggs), medications
3. Seasonal: perennial (annually) pollen.
4. Drug induced: from recurrent use of nasal sprays

-These conditions can also cause, sinus, ear, learning disorders, and sleep problems.

-Viral rhinitis: especially the common cold affects about 1 billion people annually.

**Signs/ symptoms**

- Rhinorrhea: excessive nasal drainage
- Nasal congestion
- Nasal discharge (purulent with bacterial rhinitis), sneezing
- Puritus of the nose, roof of mouth, throat, eyes, and ears
- Headache may appear especially when rhinosinusitis is present.

**Management**

- Treat the symptoms, antihistamines, nasal decongestants (carefully they can cause rebound congestion)
- Wash your hands
- Remove or decrease your exposure

**Rhinosinusitis**

Formerly called sinusitis. Inflammation of the paranasal/sinus cavity.

- uncomplicated cases do not show any inflammation outside of the paranasal sinus/ nasal cavity.

- **Acute Rhinosinusitis**: less than 4 weeks, four or more acute episodes per year. Usually followed by a cold or unresolved viral/bacterial infection. A bacterial case usually lasts 5-7 days

  - **S/sx**: purulent drainage accompanied by nasal obstruction or a combination of facial pain, pressure, or a sense of fullness. Excellent medium for bacterial growth.

**Subacute sinusitis**: 4-12 weeks

**Chronic rhinosinusitis**: more than 12 weeks of two or more of the following symptoms; mucopurulent drainage, nasal obstruction, facial pain/pressure/fullness. (Hyposmia; decreased sense of smell.

- *mechanical obstruction* in the ostia of the frontal, maxillary and ethmoid sinus is usually the cause of chronic rhinosinusitis and recurrent acute rhinosinusitis. The obstruction prevents adequate drainage of the nasal passages resulting in accumulation of secretions and bacterial growth mediums.

- **S/sx**: cough, chronic hoarseness, chronic headache in around the eyes, edema around the eyes and face pain. Snoring and sore throat may occur.

Symptoms are generally worse upon waking in the morning, many patients also experience fullness in the ears and decreased sense of taste and smell

**NURSING EDUCATION**: Avoid swimming, tobacco use, alcohol, and educate patients on the correct use of pseudoephedrine (may cause rebound congestion). If the bacteria or virus gets into the meninges or CNS you can end up with meningitis that may. Manifest with NUCAL ridgeitity.
**Viral rhinitis (common cold)**

-The most frequent viral infection in the general population.

-Colds are most contagious because the virus is shed for about 2 days (prodormial period) before symptoms appear and during the first part of the symptomatic phase.

-Usually occur during fall and spring, seasonal changes are relative to humidity, most colds survive better in low humidity (texas kids are sick more often due to humidity)

-Cold temps DO NOT increase the risk of contracting or the severity of the common cold! (you can sleep with a wet head!!! Yay!!)

- **S/sx:** low grade fever, nasal congestion, excessive nasal drainage (rhinorrhea), halitosis, sneezing, watery eyes, scratchy or sore throat, general malaise, often a headache and muscle aches. In some cases as the illness progresses a cough may appear and some will see an exacerbation of Herpes Simplex 1 virus.

**Herpes simplex virus**

**2 strains:** HSV1 (Cold sores) HSV2 (genital herpes)

50-80% of cases are contracted by age 30

Can be spread through contact, towels, use of personal items (lip gloss, chapstick HSV1)

**HSV1** - Usually exacerbated by stress, weather, illness, trauma, over exposure to sunlight

**HSV2** - very painful, can transmit even when not broken out, should avoid sex, most cases are asymptomatic. Teach patients to use protection, urinate after sex, and wash their hands! Teach the community about prevention and where to get tested.
**Acute Pharyngitis**
- A sudden painful inflammation of the pharynx including: Posterior portion of the tongue, soft palate, and tonsils.

**Viral infection**: causes most cases of acute pharyngitis
Adenovirus, influenza, Epstein-barr, and Herpes simplex virus are some examples.

**Bacterial infection**: accounts for the remainder of the cases.
10% of adults have group A (beta- Hemolytic) strep.
Strep throat warrants the use of antibiotics
- when taking a strep culture you must touch the back of the throat with the q-tip and swab in a circular motion also touching the tonsils. 24 hours for culture results, minutes for instant result test.
- strep rash (scarlett fever) is raised and feels like sandpaper and can accompany strep throat.

**S/sx**: fiery red pharyngeal membrane and tonsils, swollen lymphoid follicles that are flecked with white exudate, swollen cervical lymph nodes, sore throat, malaise, and no cough

**Chronic pharyngitis**
Persisted inflammation of the pharynx
- common for people who work in dusty surroundings or use their voice excessively, suffer from chronic cough or habitually use tobacco or alcohol.

**Three types of chronic pharyngitis**

**Hypertrophic**: thickening and congestion of the mucous membrane

**Atrophic**: late stage of hypertrophic, thin, white, glistening, moist, and sometimes wrinkled mucous membrane.

**Chronic granular**: numerous swollen lymph follicles in the pharyngeal wall.

**S/SX**: fullness in throat, nasal drip, dysphasia

**NURSE EDUCATION**:
Teach your patient to decrease their exposure to irritants.
They can use OTC antihistamines or nasal preparations for short time periods.
**Tonsillitis and adenoiditis**

-usually a result of a viral infection

-s/sx usually snoring or dyspnea

-frequently serve as the site of acute infection (tonsillitis)

- the adenoids consist of lymphatic tissue near the center of the posterior wall of the nasopharynx.

- Watch for post op bleeding, protect airway, have patient avoid dairy, monitor for fever, throat pain etc., nothing hot, gargle with warm H2O. Give analgesia and throat drops

- use a tongue depressor, pen light, and throat swabs.

**Peritonsillar abscess (quinsy)**

Most common major suppurative complication of a sore throat

-collection of purulent exudate between the tonsillar capsule and the surrounding tissue, including the soft palate. May occur after an acute tonsil infection that becomes cellulitis/abscessed.

-edema can cause airway obstruction

- dysphagia, and ear pain are common, usually treated with antibiotics

**Laryngitis**

Inflammation of the larynx usually from voice abuse or exposure to dust and chemicals. May also be caused by an isolated infection involving the voice box.

-also associated with GERD.

- most common cause is a virus

- Often associated with rhinitis or pharyngitis

- Viral laryngitis is common in the winter and is easily transmitted

- S/sx: aphonia (loss of voice), sore throat, cough, low raspy voice, pt may complain of lump in their throat.

- Agitated by cold dry wind.

**Nurse management**

Have the patient rest their voice, if symptoms last longer than 2-3 weeks its considered chronic laryngitis. Avoid smoking, allergens or anything that irritates it.

- Treatment includes short term steroids. If antibiotics are prescribed educate the patient to take the entire prescription.
- DX: laryngoscopy, throat swab.

The nursing process

Assessment

Airway is always the number one priority!!!!!!

1. Gather a complete health hx
2. Ask about allergies
3. When did the symptoms begin, what was going on when they noticed them, does anything make it worse/better?
4. Inspection of the throat may reveal swelling or redness, asmetry of the nose as well as bleeding
5. Palpate the frontal and maxillary sinuses for tenderness
6. Palpate the lymph nodes.
7. Educate pts on signs and symptoms of complication

Diagnosis

- ineffective airway clearance r/t excessive mucous production, secondary to retained secretions and inflammation.
- acute pain r/t upper airway irritation, secondary to an infection
- impaired verbal communication related to physiologic changes and upper airway irritation/changes, secondary to swelling or infection
- deficient fluid volume r/t decreased fluid intake and increased fluid loss secondary to diaphoresis associated with fever
- deficient knowledge regarding prevention of URI'S, treatment regimen, surgical procedure, or post op care.

Uri Complications

- Airway obstruction.
- Hemorrhage.
- Sepsis
- Meningitis or brain abscess.
- Nuchal rigidity
- Cellulitis
- medicamentosa (rebound rhinitis)
- acute otitis media
- trismus (jaw spasm, like tetanus)
- dysphagia
- ahponia (lost voice)
Obstruction and trauma of the airway

- obstructive sleep apnea: TX, c-pap, bi-pap, o2 therapy
- Nasal obstruction: deviated septum, turbinate hypertrophy, polyps
- Fracture of the nose: traumatic obstruction, tx: reduction of fracture, control epistaxis and edema
- Laryngeal obstruction: edema, tx: sub q epi, tracheotomy

Obstructive sleep apnea

Recurrent episodes of upper airway obstruction and reduction in ventilation

- apnea during sleep usually cased by reparative upper airway obstruction
- Males that are over weight and have large necks are at an increased risk
  Risk
  - 2-4% 4-9% are men 80% are undiagnosed

- Characterized by frequent loud snoring with breathing cessation of 10 seconds . 5 episodes per hour
- several hundred per night.
- Interferes with sleep, most patients are always tired
- Trauma and abnormal jaw placement can be a cause
- Alcohol makes it worse, pts should diet and exercise or strengthen upper airway (not accepted tx yet)
- Women shoe s/sx at menopause.
**Epistaxis**

A hemorrhage from the nose, caused by rupture of the tiny blood vessels in the nose. Anterior septum is the most common place where 3 majors vessels enter the nasal cavity.

May result in airway issue or serious blood loss, if a nose bleed lasts longer than 15 minutes go to the ER.

**Risk factors:** Sports, picking, trauma, altitude changes, hemophilia, dry air, cocaine, anticoagulants, afirin spray.

**Treatments:** Pinch soft portion of nose and lean forward for 5-10 mins to avoid aspiration of blood. Phenylephrine spray can vasoconstrict to stop the bleeding. Cauterization with silver nitrate or machine. Nasal tamponade can last 3-4 days. Rapid rhino (let it first).

**Nursing management:** have the patient avoid spices food. Have the patient avoid exercise, picking, spicy food, avoid straining during a bowel movement.

**Nasal fracture**

- The most common fracture in the body.

- Usually from a direct assault.

- May affect the ascending process of the maxilla and septum, torn mucous membranes result in nosebleed.

- Complications: hematoma, infection, abscess, avascular or septic necrosis.

- An accurate dx can only be made after the swelling goes down.

- Delay in tx can cause improper healing.

- Clear fluid draining from the nostril suggests a fracture of the cribriform plate with leakage of Cerebrospinal fluid.

**Nurse management:** keep head elevated, avoid sports and vigorous activities for 6 weeks, you can pack the nose, and humidify to decrease risk of more bleeding.
**Laryngeal obstruction**
Swelling can lead to hypoxia
Objects can get stuck
Anything swallowed that is sharp needs removed asap and calls for immediate action to avoid perforation of the intestines

**Laryngeal cancer**
- accounts for half of all neck cancers
- 12,360 new cases annually, 3,650 deaths annually
- Most common in people age 65+
- 4x more common in men
- Hoarseness for more than two weeks
- May complain of a persistent cough, sore throat, pain/burning, especially when consuming hot liquids or citrus juices.
- **Risk factors**: tobacco, second hand smoke, asbestos, chemicals; asbestos exposure comes from moving the chemical around (remodeling) usually in 1930s-1950s homes and has to be specially removed. May take 20-30 years to show s/sx

**Medical management of laryngeal cancer**

**Stages 1 & 2**: radiation therapy, cordectomy, endoscopic laser excision, partial laryngectomy

**Stages 3&4** : radiation, chemo, chemoradiation, total larnectomy

**Prognosis**: depends on stage, grade, and location

**Changes in airflow with laryngectomy**: dust pollen and bacteria can cause changes in cilia (malfunction). They no longer breathe with their nose or mouth. Eating is very difficult
Give rescue breaths to the stoma. Not permitted to bathe or swim, must change HME every 24 hours.
An electrical larynx sounds mechanical and you cannot change your pitch.
Nursing process
Assessment

1. Obtain health hx
2. Physical assessment
3. Nutritional status
4. Literacy
5. Coping skills and support system
6. PO intake

Diagnosis

1. Ineffective airway clearance
2. Impaired verbal communication
3. Imbalanced nutrition
4. Disturbed body image
5. Anxiety/depression
6. Self care deficit
7. Knowledge deficit

Collaborative problems/potential complications

Respiratory distress
Hemorrhage
Infection
Wound breakdown
Aspiration
Tracheostomal stenosis

Post operative nursing care

Maintain patent airway
Reduce their anxiety (explain what to expect, sedation)
Support alternative communication
Promote adequate nutrients/hydration
Promote positive body image
Self care management