TANUVAS Clinical Medicine

Promoting Clinical Excellence …Since 1903…

EXAMINATION OF THE RESPIRATORY SYSTEM

Dr.P.Selvaraj

Assistant Professor of Clinical Medicine

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

EXAMINATION OF THE RESPIRATORY SYSTEM

Examination of the Respiratory System:

- Respiratory system signs are induced by infectious as well as non-infectious causes; therefore its examination is of particular clinical importance.
- Principle manifestations of respiratory insufficiency
- Hyperpnoea, dyspnoea
- Cyanosis
- Cough
- Nasal discharge

The main methods of examination of respiratory system are inspection, palpation, percussion and auscultation.

Inspection: Determines the respiratory movement, rhythm, quality and type of respiration. Symmetry and form of thorax are also determined by inspection.

Palpation: Sensitivity of the larynx, trachea and thorax are determined by palpation.

Percussion: Used to determine the physical condition of the lungs and pleura.

Auscultation: For detection of the condition of mucosa, lumen of trachea and bronchi changes of alveoli, pleura and the presence or absence of exudate.

© TANUVAS, 2011

Dr.P.Selvaraj

Other methods of examination :

- Other methods are also used for examination of the respiratory system such as, X-rays and bronchoscopy. These methods are of great importance in the diagnosis of various forms of pneumonia and pleurisy in all species of domestic animals. Emphysema and tuberculosis are also diagnosed using these methods.
- Rhinoscopy and laryneoscopy for examination of the nasal cavity and pharynx.
- Microscopic examination of nasal discharge, swabs, sputum, faeces (lung worm).
- Paracentesis of thoracic cavity is of value when fluid is present in the thoracic cavity for drainage, treatment and cytological examination.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Routine examination of respiratory system :

- Nasal discharge and expired air
- In healthy animals, small amount of mucous is found in the nasal cavity. In equine, following severe exercise, watery mucous can be seen dripping from the nostrils.
- Pathologically, may contain detached destroyed tissues, transudate, blood or saliva. Unilateral nasal discharge is seen in unilateral localized affection of the nose or adjacent structure. Bilateral nasal discharge occurs in bilateral affection of the bronchi, diseases of pharynx, oesophagus and stomach (vomiting).
- The amount of nasal discharge increases in acute nasal catarrh, malignant head catarrh in rumenants and swine infectious rhinitis. Reduced amount is noted in chronic catarrh of upper respiratory tract (URT), bronchitis and pheumonia and in pulmonary tuberculosis in ruminants.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Routine examination of respiratory system :

- The consistency depends on the pathological changes; serous discharge which is watery in consistency, colorless, transparent is seen in acute diseases of respiratory tract. Secondary infection may turn it into mucous or mucopurulent discharge.

- Seromucoid discharge is slightly more viscous than serous discharge. It maybe colorless or grayish in cases of late stages of acute nasal catarrh or bronchitis and laryngitis. The color is derived from presence of small numbers of leukocytes in the discharge.

- Purulent discharge is liquid, non-transparent, yellow or greenish in color. It is present in cases of abscesses opening in the respiratory tract. Bloody discharge is a main sign of trauma of capillaries of URT, pulmonary infarction, haemorrhagic diathesis in horses and in anthrax in ruminants.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

- All the above-mentioned types of discharge have no characteristic odour except for purulent discharge, which has a characteristic rancid odour.

- In pulmonary oedema, haemorrhage and chronic bronchitis, nasal discharge may contain air, which results in the foamy character of the discharge. In diseases or paralysis of the pharynx, nasal discharge maybe mixed with saliva and food particles.

- Microscopical examination of the nasal discharge detects epithelial cells, leukocytes, erythrocytes, fibrin, elastic fibers, crystals of fatty acids, parasitic ova, fungi and various microorganisms. Elastic fibers are seen in pulmonary gangrene and opened tuberculous nodules.

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

- Examination of the nostrils and nasal mucous membranes
- This is preferably carried out in daylight to facilitate detection of the color of mucous membranes. Nasal mucous membranes may become hyperaemic in acute nasal catarrh (rhinitis).

- Cyanosis maybe seen in venous congestion, cardiac insufficiency, dyspnoea, disturbance of gas metabolism accompanying insufficient oxidation of the blood.

- Anaemia results in pale mucous membranes. Chronic nasal catarrh also results in pale mucous membranes. Jaundice (yellowish discoloration of mucous membranes) is seen in hepatic diseases, acute infectious anaemia and leptospirosis.

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Other lesions or abnormalities of nasal mucous membranes

- Wounds resulting from trauma.
- Ulcers resulting in loss of epithelial layer and tissue destruction as seen in acute or chronic nasal catarrh or haemorrhagic diathesis in equines. In these cases the ulcers are superficial whereas deep ulcers are seen in glanders.

- Neoplasia as in sarcoma and carcinoma.
- Oedema of the nasal cavity in severe diseases (malignant head catarrh in cattle).
- Facial nerve paralysis in horses results in a change in the shape of nostrils, as they become elongated and drawn downwards.

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Examination of the para-nasal sinuses :

- Inspection, palpation and percussion are all useful in examination of para-nasal sinuses. In special cases, rhino-laryngeoscopy and X-rays are also used.
- Inspection reveals uni- or bilateral enlargement or asymmetry of the head in cases of acute sinusitis. Tumors may also result in asymmetry of sinuses. Rickets and osteomalacia both cause bony deformities.
- Palpation is useful in determining the sensitivity and consistency of bones. In acute inflammation the examined area is hot and painful.
- Normal sinuses give tympanic sound on percussion; dull sound is heard if the sinuses are largely filled with exudate, in cases of bone degeneration and tumors.

© TANUVAS, 2011

Dr.P.Selvaraj

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Examination of the larynx and trachea:

- Inspection is used to detect enlargement of the area of larynx and trachea through edematous swelling. Inflammatory swelling at the area of larynx is seen in cases of severe form of laryngitis, anthrax in ruminants, malignant oedema and atypical forms of strangles in horses.
- Traumatic pericarditis in ruminants may cause non-inflammatory oedema in the submaxillary space that may extend to the area of larynx and trachea.
- In sheep, oedematous swelling is often seen in helmenthiasis (Dictycaulus and Fascioliasis).

© TANUVAS, 2011

Dr.P.Selvaraj

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Examination of the larynx and trachea:

- In cases of increased sensitivity of the larynx (laryngitis), cough is induced by applying pressure on the first three tracheal rings. Pressure on tracheal rings results in irritation of the larynx and therefore results in induced cough reflex.

- Bronchial sound is heard by auscultation over the area of the trachea; this sound is also referred to as tracheal, laryngeal and bronchia sound. In cases of bronchitis or trachitis, the sound is intensified. Stenosis of URT in cases of laryngeal oedema and tumours results in stenotic sounds. If the larynx or trachea is filled with liquid exudate, rales also are heard. The character and strength of rales vary according to the amount and type of exudate.

- Laryngeoscopy is helpful for detection of tumours, oedema and character of mucous membranes.

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Cough :

- This is a reflex action to irritation of respiratory passages due to any cause. Examples of causes or inducers of cough are dust, inspiration of food particles, inflammation of mucosal lining, inhalation of various gases (chlorine or ammonia), or from exposure to cold.

- Cough described based on strength and character. Strong cough occurs when inspiration is deep. Weak cough occurs in difficult expiration where the animal is unable to cough actively; this is seen in pulmonary emphysema, pneumonia and exudative pleuritis.

© TANUVAS, 2011

Dr.P.Selvaraj

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Cough :

- Character of cough depends on production of exudate and could be described as either moist (productive) or dry (unproductive) cough. Moist cough is seen in acute inflammatory conditions of the respiratory tract where there is accumulation of a large amount of mucous. Dry cough occurs in chronic respiratory diseases or in acute dry bronchitis.

- Frequency of cough depends on the degree of irritation of mucous membranes; it may be single, continuous or periodic. Cough may also be painful or painless. It is painful in acute laryngitis, tracheitis, bronchitis, pleuritis and peritonitis. In chronic inflammation of URT, cough is painless. However, evaluation of pain in animals is often very difficult as this is a subjective sign.

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Examination of sputum :

- Mucous and other inflammatory substances are expelled out of the respiratory system via the mouth or the nostrils following productive cough. These expelled materials are termed sputum.

- Microscopic or bacteriological examination of sputum is helpful in detection of causative agents of the respiratory infection or disease. Sputum is collected by inducing cough artificially or by introduction of a swab.

© TANUVAS, 2011

TANUVAS Clinical Medicine

Promoting Clinical Excellence …Since 1903…

EXAMINATION OF THE THORAX

Dr.P.Selvaraj

Assistant Professor of Clinical Medicine

© TANUVAS, 2011

EXAMINATION OF THE THORAX

- The thorax must be first examined by inspection to assess its form and shape. Unilateral narrowing of the thorax occurs in pleuritic diseases after absorption of exudate whereas bilateral narrowing occurs in tuberculosis, and in rickets.

- Bilateral enlargement (barrel shape) of the thorax is seen in bilateral alveolar emphysema, and bilateral exudative pleuritis. Unilateral enlargement of the thorax maybe seen in unilateral exudative pleuritis, pneumothorax and unilateral pneumonia.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

EXAMINATION OF THE THORAX

- Palpation for assessing the sensitivity of the thorax and its temperature. Hotness and pain occurs in acute inflammatory conditions and pleuritis.

- Direct or indirect percussion is an important method of examination in small and large animals (dogs, cats, and ruminants, equines respectively). For percussion of thorax, the vet must first determine the area of percussion.

- On percussion of the thoracic wall, the area must be divided into upper, middle and lower thirds. The most intensive pulmonary sound is heard on percussion of the middle third where the thoracic wall is somewhat thin, curvature of the ribs is large and airwaves are deep. In the upper third, the heavy musculature hinders clear resonant sound of the lungs.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Changes in area of percussion :

- Increased area of percussion is seen when the size of lung tissue increases, presence of large amount of air in the lungs as in alveolar emphysema, various forms of pneumonia and in cases of unilateral pneumonia and pneumothorax there is a unilateral increase in the area of lung percussion.
- Decreased area of lung percussion is seen in animals with acute gastric dilatation, tympany of the intestine, ruminal tympany and in cases of presence of fluids in the thoracic cavity.
- Normally in most animal species percussion over the lung area results in resonant sound; in very small animals it is more of a tympanic sound.

© TANUVAS, 2011

Dr.P.Selvaraj

Abnormal percussive sounds :

- Loud resonant sound (e.g. emphysema and pneumothorax).
- Tympanic sound; when a part of lung tissues are surrounded by solidified tissue or exudate, which isolates it from its environment.
- This occurs in the following conditions
  - In early and late stages of fibrinous pneumonia.
  - In catarrhal pneumonia.
  - In pulmonary oedema and atelectasis.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Abnormal percussive sounds :

- In presence of small or large tumors which surround lungs.
- In prolapse of the bowel into the thoracic cavity in diaphragmatic hernia.
- Dull sound is heard when lung tissue becomes dense. This occurs in
  - Pneumonic hepatization.
  - Tuberculosis and metastatic pneumonia.
  - Tumors.

© TANUVAS, 2011

Dr.P.Selvaraj

Notes of practical importance :

- Changes in the character of the percussion sound is detectable only when a lesion is present in a considerable size and is superficially situated.
- A pain reaction maybe produced by percussion. This is indicated by the animal kicking or biting or even shying away from the examiner; vocalization in cases of dogs and cats.
- Percussion may also induce cough in cases of pneumonia, bronchitis and pleurisy.
- Differentiation between increased density of the lungs and that due to the presence of fluid in pleural sacs is determined as follows
- Increased density of the lungs in pneumonia, the area of dullness has an irregular outline, the cardiac impulse is palpable, heart sounds are clearly audible outside the cardiac area, abnormal bronchial or other sounds are often heard during auscultation (rales or frictional sounds).

TANUVAS
Clinical Medicine
Promoting Clinical Excellence … Since 1903…
© TANUVAS, 2011
Dr.P.Selvaraj

Notes of practical importance :

- Presence of fluid in the pleural cavity (e.g. exudative pleurisy, hydrothorax) results in an area of dullness that has a horizontal delimitation, which changes when the posture of the animal is altered.

- Auscultation is carried out to assess sounds produced during breathing when the air enters the lung. The sound normally heard on the healthy lung is termed vesicular murmur. This sounds like the soft pronunciation of the letter “V”. It begins with the inspiration, increasing as the inspiration continues, becomes fainter and shorter having the character of a softly aspirated “F” at expiration.

- An exaggerated vesicular murmur occurs

  - If the respiration is intensified.
  - Physiological or pathological dyspnoea.
  - In bronchitis where the lumen of the bronchi are either swollen, or filled with exudate.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Rales

- These are abnormal respiratory sounds indicate presence of respiratory disease; if the bronchi or a cavern in the lung contain movable exudate.

Types of rales include

Moist rales

- If the bronchi contain light fluid (pus, liquid exudate or blood). Bronchitis with varying degrees result in moist rales.

Crepitant rales

- Fine cracking noises. They originate from a separation at respiration of the adhering walls of the bronchi and vesicles. They appear in bronchitis, pulmonary oedema and in early stages of fibrinous pneumonia.

Dry rales

- In cases of swelling of mucous membranes, or presence of tough bronchial secretion of small quantity. These result in rough mucous membranes, projecting irregularities, which vibrate during inspiration and expiration.

- Sounds maybe humming, hissing or whistling in character. Dry rales are seen in chronic bronchitis, compression of the bronchi by nodules (tuberculosis, chronic pneumonia) and tumours.

- Presence of peristaltic sounds in the thoracic cavity indicates ruptured diaphragm and protrusion of the intestine into the thoracic cavity. In contrast to the lung sounds, they are not synchronous with inspiration and expiration.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Pleuritic frictional sounds:

- In cases of surface of pleura becomes rough and dry due to presence of inflammatory deposits, frictional sounds are heard. Pleuritic frictional sounds occur in dry or fibrinous pleuritis only. It is most frequently heard in contagious pleuro-pneumonia of horse and ox.

- Summary of the differences between rales and frictional sounds

Frictional sounds	Rales
More pronounced at inspiration than expiration	Heard at both inspiration and expiration regularly (i.e. associated with respiratory cycle).
Removed or modified by cough	Cough does not affect its presence
	Painful

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

TANUVAS Clinical Medicine

Promoting Clinical Excellence …Since 1903…

RESPIRATORY SOUNDS ON AUSCULTUTION

Dr.P.Selvaraj

Assistant Professor of Clinical Medicine

© TANUVAS, 2011

RESPIRATORY SOUNDS ON AUSCULTUTION

- The normal respiratory sound heard over the respiratory area consists of vesicular sound & bronchial sound.

- Vesicular respiratory sound "vesicular murmur" The vesicular murmur resemble the sound produced when the letter "V" is whispered softly & it occurs during inspiration, but during expiration the vesicular murmur changes its character& resembles the sound of the letter "F".

- The vesicular murmur may be exaggerated or feeble "soft".

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Exaggerated vesicular sound:-

- Increased respiratory frequency "polypnea".
- Increased depth of respiration "hyperpnea".
- Occurs normally in young animals.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Feeble vesicular sound:

- Thickening of thoracic wall & pleura due to any cause
- Reduced air content of the lung as in early stages of pneumonia.
- In old animals.

  Hydrothorax, hemothorax & pulmonary neoplasms

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Bronchial respiratory sound:-

- It resembles the sound produced by the letter "CH". It is heard clearly in small animals and very lean old animals but in large animals it is less distinct.
- The occurrences of bronchial sound in the lung are indicating of a diseased condition.
- It is audible when the lung contains less air with increase in the structural density of the inflammatory area which acts as a good conductor of the sound as in cases of hydrothorax, hemthorax & pleurisy "Exudative stage".

© TANUVAS, 2011

Dr.P.Selvaraj

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Cripitant rales:-

Occurs when the bronchial mucosa is sufficiently swollen & affection extends to involve the alveoli. So, opposing walls become adherent to one another but the stream of air still pass through small communication between them it resembles the sound produced by rubbing a tuft of hair held between fingers close to the ear.

It occurs in cases of:

- Bronchiolitis.
- Early stages of pneumonia.
- Pulmonary odema.

© TANUVAS, 2011

Dr.P.Selvaraj

Frictional sound

Normally the visceral & parietal pleura glide smoothly over each other, since both membranes are smooth & lubricated by clear lymph like fluid, when these surfaces are dry, frictional sound occurs.

It resembles the sound produced by rubbing two pieces of leather against each other or by pressing the finger against the ear & stretching the finger nail of other hand.

It occurs in cases of:

- Preexudative stage of pleurisy.
- Pericarditis.

Emphysematous sound (Harch sound), or (Sharp sound):-

Resembles the sound produced by collection of a piece of paper between fingers & hand.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Girgling sound:

Resembles sound produced by gases & air bubbles, as in cases of diaphragmatic hernia (in the chest) &bloat (in the rumen).

Moist rales:

Occurs when the bronchi & bronchioles contains thin watery mucous secretions, they are obtaining as when air is drawn from the end of the tube under the surface of water, so it is called bubbling sound. According to the site of affection moist rales are classified.

Fine moist rales :

- Occurs when the terminal parts of respiratory tract "alveoli" are involved. They are of unfavorable prognosis.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

- B-Coarse moist rales :
- Occurs when the affections are confined to the bronchi & bronchioles only.
- It occurs in cases of:
  - Bronchitis "acute".
  - Bronchiolitis.
  - Bronchopneumonia.
  - Aspiration "drenching pneumonia".
  - Hydrothorax.
  - Haemothorax.

Dry rales:-

- Dry rales are heard when air is forced through the bronchial tube which is partially thickened by the thick consistency exudate as by the severe swelling of the mucous membrane.
- Chronic bronchitis.
- T.B

TANUVAS
Clinical Medicine
Promoting Clinical Excellence … Since 1903…
© TANUVAS, 2011
Dr.P.Selvaraj

TANUVAS Clinical Medicine

Promoting Clinical Excellence …Since 1903…

PRINCIPLES OF RESPIRATORY INSUFFICIENCY

© TANUVAS, 2011

Dr.P.Selvaraj

PRINCIPLES OF RESPIRATORY INSUFFICIENCY

- **Anoxia :**
  - **It means failure of the tissues to receive an adequate supply of oxyge**

Types of anoxia:

- **Anoxic Anoxia :**
  - **Occurs when there is defective oxygenation of the blood in the pulmonary circulation.**
  - **It is usually caused by primary disease of the respiratory tract.**
- **Anemic Anoxia:**
  - **Occurs when there is a deficiency of hemoglobin per unit volume of the blood.**
  - **The percentage saturation of the available hemoglobin & oxygen tension are normal, but the oxygen carrying capacity of the blood is reduced. It is usually caused by anemia due to any cause."e.g."poisoning by nitrites or carbon monoxide .**
- **Stagnant Anoxia:**
  - **Occurs when the rate of blood flow through the capillaries is reduced.**
  - **It usually occurs in cases of congestive heart failure, peripheral circulatory failure& venous obstruction.**
- **Histotoxic Anoxia:**
  - **Occurs when the blood is fully oxygenated, but because of the failure of the "tissue oxidation system," the tissues can not take up oxygen .**
  - **It usually occurs as a result of cyanide poisoning.**

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Special causes of Anoxic Anoxia:

When the oxygen tension of the inspired air is too low, that it can not oxygenate the pulmonary blood.

Any lesion or dysfunction of the respiratory tract reducing the supply of alveolar air such as :

- Pneumonia.
- Pulmonary atelectasis.
- Pneumothorax.
- Pulmonary edema &congestion.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Special causes of Anoxic Anoxia:

- Any decrease in the chest movement due to pain in the chest wall.
- Obstruction of air passage by accumulation of the exudates.
- Depression of the respiratory center by drugs or toxins.

- Congenital defects of the heart & large blood vessels, when mixing of arterial & venous blood occurs through shunts between the two circulation.

- Paralysis of respiratory muscles.
- Botulism.
- Tetanus.
- Strychnine poisoning.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Complications of anoxia:

- Increase in depth of respiratory movement “hyperpenea” which is mediated by chemoreceptors in the aortic arch & barorecptors in the carotid sinus.
- Stimulation of splenic contraction.
- Erythropoiesis in the bone marrow.
- Increased heart rate.
- Signs of dysfunction of various organs appears, cerebral anoxia, myocardial dysfunction, renal and hepatic dysfunctions as well as reduction in motility and secretory activity of alimentary tract.

Carbon Dioxide Retention “Hypercapnia”

It means that there is an accumulation of CO2 in the blood and tissues which cannot be eliminated via the lungs and that is due to respiratory insufficiency. This Co2 stimulates the respiratory center.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Respiratory Failure :

Respiratory movements are controlled by respiratory center in the medulla & this center is controlled by afferent impulses from cerebral cortex, heat regulatory center in the hypothalamus, stretch receptors in lungs via the vagus & from chemoreceptors in the carotid body.

The activity of respiratory center is also regulated by: pH, oxygen & carbon dioxid tensions of the cranial arterial supply. So, stimulation of the above afferent nerves may cause reflex changes in respiration & causing stimulation of the pain fibers.

© TANUVAS, 2011

Dr.P.Selvaraj

Respiratory failure is the terminal stage of respiratory insufficiency, in which the activity of respiratory center is diminished to the point where the movement of respiratory muscles is completely stopped.

Types & Causes:

Respiratory failure may be

- tachypenic,
- dyspneic,
- asphyxial or paralytic depending on the primary disease.

.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Asphyxial respiratory failure

Causes :

- Pneumonia.
- Pulmonary odema.
- Upper respiratory tract obstruction

Clinical signs:

- Hypercapnia
- Stimulate respiratory center
- Stimulation respiration
- Anoxia.
- Gasping. Apnea
- Death

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Dyspnoeic Respiratory Failure

Causes :

- Poisoning with respiratory center depressants.
- Nervous shock.
- Acute heart failure.
- Hemorrhage.

Clinical signs:

- Variable degree of dyspnea & gasping.
- Paralysis of the respiratory center Ø shallow respiration & less frequent then complete stop of respiration .
- Tachypneic respiratory failure

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

Asphyxial Respiratory Failure

Causes :

Increased pulmonary ventilation "hypoxia " but no carbon dioxide retention .

Clinical signs:

Because of the lack of carbon dioxide to stimulate the respiratory movement; Rapid & shallow respiratory & shallow tachypnea are evident.

Treatment of respiratory failure :

- In paralytic type stimulants of respiratory center are given.
- In asphyxyial type oxygen is provided.
- In tachypneic type oxygen & CO_2 are provided.

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

© TANUVAS, 2011

Dr.P.Selvaraj

TANUVAS
Clinical Medicine

Promoting Clinical Excellence … Since 1903…

Thank you

© TANUVAS, 2011

Dr.P.Selvaraj