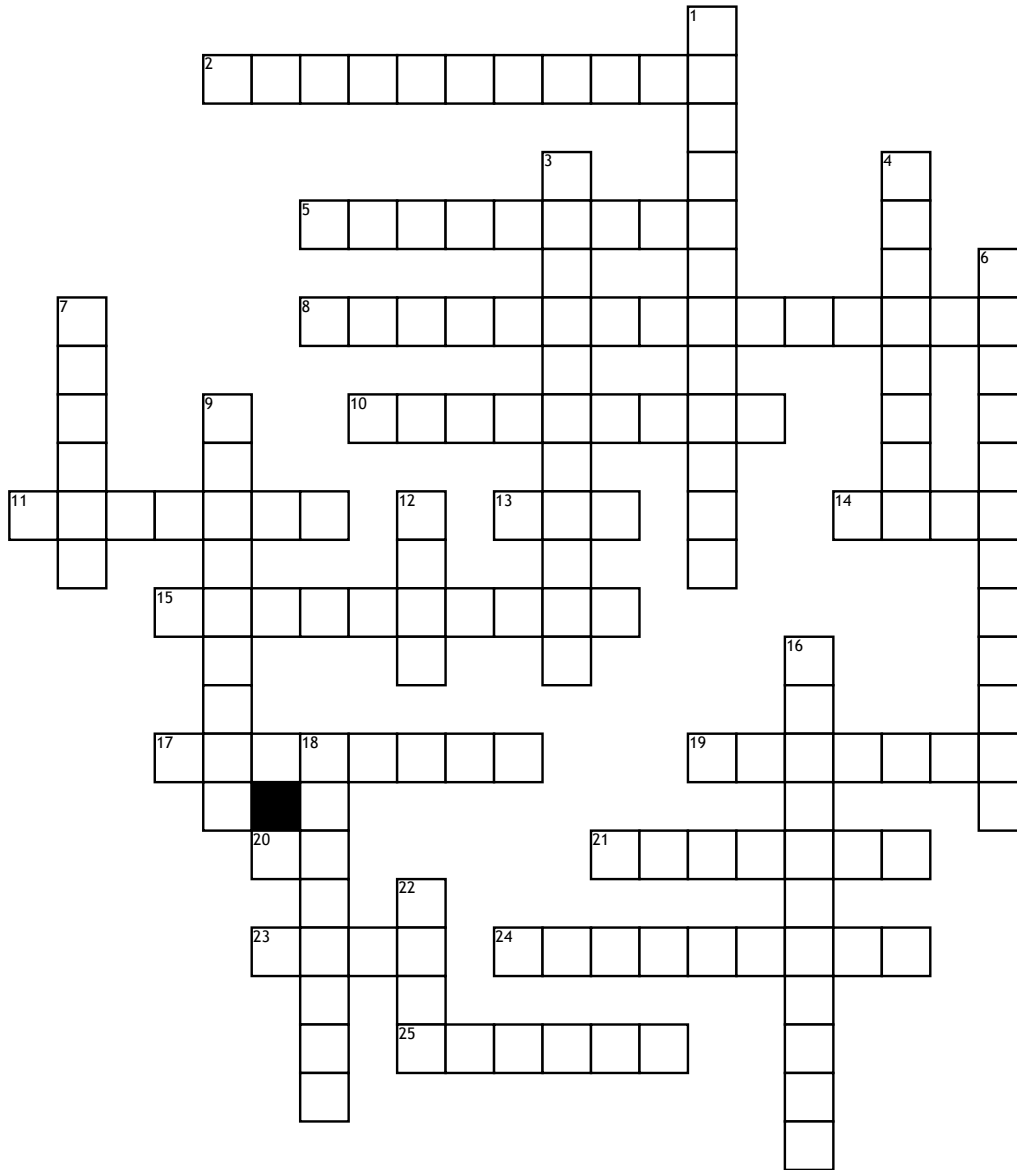


Respiratory System



Across

2. In _____ lung disease, both forced expiratory volume in one second (FEV1) and forced vital capacity (FVC) are reduced, however, the decline in FVC is more than that of FEV1, resulting in a higher than 80% FEV1/FVC ratio.

5. PFTs on a patient with _____ will reveal a compromised expiratory flow (due to their low lung recoil), including a low FEV1, FVC, and FEV1/FVC ratio.

8. β adrenergic receptors are coupled to a stimulatory G protein of adenyl cyclase. This enzyme produces the second messenger cyclic adenosine monophosphate (cAMP). In the lung, cAMP decreases calcium concentrations within cells and ultimately leads to smooth muscle relaxation and _____.

10. The larynx is located within the anterior aspect of the neck, anterior to the inferior portion of the pharynx and superior to the trachea. Its primary function is to protect the lower airway by closing abruptly upon mechanical stimulation, thereby halting respiration and preventing the entry of foreign matter into the airway. Other functions of the larynx include coughing, the Valsalva maneuver, and control of ventilation, and acting as a sensory organ.

11. In obstructive lung disease, the FEV1 is _____.

13. Ventilation can be stopped for short periods if 100% oxygen is insufflated at a rate greater than oxygen consumption (apneic oxygenation) into an unobstructed tracheal tube. Progressive respiratory acidosis limits use of this technique to 10-20 minutes in most patients. Arterial pCO₂ rises _____ mmHg in the first minute, followed by a rise of 3-4mmHg during each subsequent minute.

14. This test measures the ability of the lungs to transfer gas from inhaled air to the red blood cells in pulmonary capillaries. (abbr)

15. Extracorporeal membrane oxygenation (ECMO) has become increasingly accepted as a rescue therapy for severe respiratory failure from a variety of conditions, though most commonly, the acute respiratory distress syndrome (ARDS). ECMO can provide respiratory or cardiorespiratory support for failing lungs, heart, or both. The most common ECMO configuration used in ARDS is _____ ECMO.

17. Flail chest is a life-threatening medical condition that occurs when a segment of the rib cage breaks due to trauma and becomes _____ from the rest of the chest wall. Two of the symptoms of flail chest are chest pain and shortness of breath.

19. If an anemic state, removal of even a small amount of O₂ causes a large fall in Po₂ because there is little O₂ in the blood to begin with. A situation is quickly reached where there is little possibility of further supply to the tissues and a reduced Po₂ to drive it in. Thus anaemia can cause tissue _____ even though arterial blood has normal Po₂ and Hb saturation.

20. Inspiratory flow rates are a function of the _____, I/E ratio, and RR. (abbr)

21. A chest x-ray of a patient with pulmonary edema could likely have a _____ appearance. (2 words)

23. Normal CVP values vary between _____ and 12 cmH₂O.

24. In the case of carbon monoxide poisoning (which could result from degradation of Desflurane by desiccated CO₂ absorbent) it is best to provide _____ oxygen via a 100% non-rebreather face mask.

25. Treatment of tension pneumothorax should be immediate and involves needle decompression by inserting a large-bore (eg, 14- or 16-gauge) needle into the _____ intercostal space in the midclavicular line.

Down

1. A diagnosis of diabetic _____ requires the patient's plasma glucose concentration to be above 250 mg per dL (although it usually is much higher), the pH level to be less than 7.30, and the bicarbonate level to be 18 mEq per L or less.

3. When unresolving bronchospasm occurs and is considered life-threatening, the diagnosis of status _____ is made. Although treatment often starts with β_2 agonists (two to four puffs every 15-20 minutes), when alveolar ventilation is reduced, inhaled agents may not be successful. In this case SQ epinephrine (adult dose of 0.2-1 mg or 0.2-1 mL of 1:1000 solution) can be given. Corticosteroids enhance and prolong the response to β_2 agonists, and, in status asthmaticus, IV corticosteroids such as cortisol (Solu-Cortef) 2 mg/kg IV bolus followed by 0.5 mg/kg/hr, or methylprednisolone (Solu-Medrol) 60 to 125 mg every 6 hours, are administered early in the treatment (but may take several hours to work).

4. The most common pulmonary reserve abnormality in obese subjects is a reduction in the expiratory reserve volume (ERV). This occurs because the mass loading effect of obesity decreases FRC. Because FRC is reduced and the _____ volume is not, ERV declines.

6. It is generally accepted that oxygen therapy increases the resolution rate of _____. The theoretical basis is that oxygen therapy reduces the partial pressure of nitrogen in the alveolus compared with the pleural cavity, and a diffusion gradient for nitrogen accelerates resolution.

7. Hyperchloremia is an electrolyte disturbance in which there is an elevated level of the chloride ions in the blood. The normal serum range for chloride is 96 to 106 mEq/L, therefore chloride levels at or above 110 mEq/L usually indicate _____ dysfunction as it is a regulator of chloride concentration.

9. CPAP _____ functional residual capacity.

12. Alveolar recruitment refers to the opening of collapsed alveoli, derecruitment to the collapse of open alveoli. The term ongoing recruitment describes the state of sustained alveolar recruitment, preventing derecruitment. Derecruitment can occur due to: low tidal volume (TV) ventilation, inadequate _____, or use of high FIO₂ (absorption atelectasis). (abbr)

16. A DO₂ of at least 330 mL · min⁻¹ is required to prevent tissue oxygen _____ under anesthesia.

18. Hypoxic pulmonary vasoconstriction (HPV), also known as the Euler-Liljestrand mechanism, is a physiological phenomenon in which small pulmonary arteries constrict in the presence of _____ hypoxia.

22. A 64-year-old man with colon cancer is anesthetized for hepatic resection of liver metastases. Medical history is significant for ileal conduit surgery for bladder cancer, diabetes treated with glyburide, 50-pack-per-year smoking history, and family history of Malignant hyperthermia. Anesthesia is provided with morphine, midazolam, oxygen, and a propofol infusion. After a 3-unit packed red blood cell (RBC) transfusion and 8 hours of surgery, the following blood gas values are recorded: pH 7.2, CO₂ 34, [HCO₃⁻] 14, base deficit -13, [Na⁺] 135, [K⁺] 5, [Cl⁻] 95, glucose 240 mg/dL. The most likely cause of this patient's acidosis is _____. (abbr)