CAROTID SINUS INNERVATION

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1. Carotid and aortic bodies are chemoreceptors located outside the central system that are primarily responsive to changes in the PO$_2$.

2. The CNS receptors primarily respond to changes in PCO$_2$, and concentration of hydrogen ions.

3. The carotid bodies, located at the bifurcation of the common carotid artery, have predominantly ventilatory effects. The aortic bodies, scattered about the aortic arch and its branches, have predominantly circulatory effects.

4. Peripheral chemoreceptors transmit signals via the glossopharyngeal nerves (carotid bodies) and vagus nerves (aortic bodies) to the respiratory center in the medulla.

5. Blood flow through the peripheral chemoreceptors is the highest of any tissue in the body, which means that needs of chemoreceptors tissues can be met almost entirely by dissolved oxygen. Therefore, it is the PaO$_2$ and not the SaO$_2$ that determines the stimulation level of the peripheral chemoreceptors.
   
   a. This is the reason that anemia or carbon monoxide poisoning, in which the amount of dissolved oxygen and thus PO$_2$ remains normal, do not stimulate alveolar ventilation via the chemoreceptors.

   b. When MBP decreases below 60 mm Hg, blood flow through the chemoreceptors may decrease sufficiently to lower tissue PO$_2$ and stimulate alveolar ventilation as well as evoke peripheral vasoconstriction in an attempt to restore perfusion pressure.

Reference:
