

Poem #2: The old man chemoreceptor

Old man peripheral chemoreceptor was a gentleman fine
Who lived beside the carotid sinus line;
Old woman central chemoreceptor, his existence denied,
Lived never-the-less on the ventral medulla side.

Experiments show peripheral receptors composed of two bodies,
Where one located near carotid sinus is called a carotid body
While the other located near the aortic arch is called aortic body

A decrease in PO_2 causes
Activation of peripheral chemoreceptor;
While an increase in $PaCO_2$ causes
Activation of central chemoreceptor.

How central chemoreceptors function is a mystery
While signal transmission in peripheral receptors is an issue of controversy.
The sensory message travels to medulla thru the afferents
While the response departs from DRG to resp muscles thru the efferents.

And everything changed from here on in
From inspiratory muscle work to pressure around my abdomen and limbs
We feel the increase in venous return to my heart and right atrial pressure
Which increase pulmonary recruitment and distension, what a gesture!

P.S. this poem is no brilliance which is why I wrote the acrostic style above.

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An Acrostic Poem #1

“Chemoreceptors”

Central receptor located beneath medulla responds to hydrogen concentration by altering ventilation.

How they do this is controversial but involves diffusion of CO₂ into the extracellular and cerebral spinal fluid.

Examining the CSF shows pH of 7.32 compared to blood pH of 7.4 as well as 10mmHg of higher PCO₂.

Mechanics reveal elevated PCO₂ causes central receptors to increase ventilation in order to normalize PaCO₂.

Other sensors present are the indispensable peripheral chemoreceptor composed of carotid bodies and aortic bodies.

Receiving more blood flow than any other organ, they sense PCO₂, pH but PO₂ is their primary stimulus.

Examining carotid body's composition displays nerve link with type I glomus cell & type II sustentacular cells.

Changing PO₂ causes a signal transmission in glomus cell resulting in release of DA, Ach & NE on the nerve ending.

Excitation of afferent CN IX nerve results in propagation of message to the medulla near nucleus tractus solitarius.

Propagation of message from aortic bodies is through afferent vagus nerve (CN X) to the medulla near NTS.

Transsections of peripheral receptors during a hypoxic state result in depression of neuronal activity in the brain.

Obduracy of the afferent signal to dorsal respiratory group of medulla results in efferent activity by I B cells.

Respiratory motoneurons projecting to diaphragm and external intercostals trigger an increase in ventilation

Stimulation for breathing results in restoration of blood homeostatic environment.