BIDIRECTIONAL RELATIONSHIPS BETWEEN COUGH AND BLOOD PRESSURE

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This contribution points to the bidirectional relationship between cough and blood pressure – with clinically relevant notes to be considered.

Cough – known as the most important airway defensive reflex is characterized by forceful expulsion of the air from the respiratory tract proceeded by increase of intrathoracic pressure. These changes, mainly if repeated, can reduce the venous return and thus cardiac output, potentially leading to the cough syncope in sensitive individuals. This is probably the best-known interaction between these two processes.

However, little is known about how blood pressure itself or baroreceptor signalling influence cough reflex. Older studies suggested that the drop or increase of blood pressure has little or no effect on excitability of cough reflex. Recent data from animal models and computational model simulations share evidence that increase of blood pressure is associated with reduced excitability of cough reflex and vice versa – drop of the blood pressure increases excitability of cough related neural pathways. These processes are mediated by interactions between barosensitive and respiratory brainstem neuronal networks.

Clinicians are usually aware of cough-blood pressure interaction mainly when it comes to the hypertension medication by ACE inhibitors with the cough as the main side effect. We believe that this new information about airway defence neurophysiology could be interesting education point for our colleagues at clinics.