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Review Article

Why can Intense Breathing Contribute to Thrombosis of the Lungs, Heart and Brain?

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Abstract

It is known that aqueous media acquire a positive charge when they are bubbled with air. It has also been established that it is the positive electrification of water that increases its hydrating capacity, in particular, in relation to various biopolymers, turning them into hydrogels with adhesive properties. Given that blood clots are essentially hydrogels, both of these phenomena allow hypothesizing that intense breathing promotes thrombogenesis, primarily in the lungs, but also in the heart and brain. Given the unusual nature of this hypothesis, its rationale and advantages are discussed here in detail.

Keywords: thrombosis; ischemia; stroke; pranayama

Introduction

It is known that aqueous media acquire a positive charge when blown with air; in particular, it is generally accepted that the ability of air flows to impart a positive charge to aqueous media is due to the presence of oxygen in their composition, which has electron-acceptor properties [1]. Since this feature of air flows may be unfamiliar to doctors, it is worth adding that it is precisely this feature that allows the creation of hydrogen-air electrochemical cells (Figure 1).

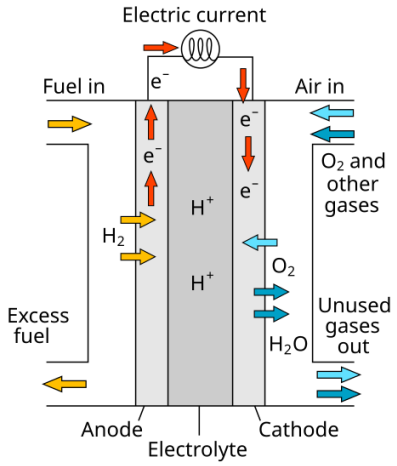

Figure 1. This is a diagram of a hydrogen-air electrochemical cell. The red arrows indicate the movement of electrons from the compartment with an aqueous solution saturated with hydrogen gas to the compartment with an aqueous solution saturated with air. It is noteworthy that hydrogen gas causes negative electrification of the aqueous medium (left), while oxygen gas causes positive electrification of the aqueous medium (right).

In addition, doctors must understand that the magnitude of the positive potential generated in the anode section of such a cell (Figure 1) is proportional to the intensity of the air flow entering this section (Figure 1, left); it seems that it is precisely this understanding that can most contribute to the acceptance of the proposed hypothesis by doctors.

To make Figure 1 more appealing to doctors, it is worth also noting that human intestinal gas can consist of up to 50% hydrogen gas [2]. Thus, the human body can be imagined as a type of hydrogen-air electrochemical cell, where the intestine is the analogue of the cathode department (Figure 1, left), and the lungs are the analogue of the anodic department (Figure 1, right). At the same time, the latter analogy allows concluding that air currents also cause positive electrification of the lungs, just as they cause positive electrification of anolytes (Figure 1, right).

To make the latter analogy even more meaningful for doctors, it should also be noted that positive electrification of aqueous solutions of biopolymers by oxygen flows transforms them into hydrogels that have the same adhesive properties as starch paste (Figure 2, right).

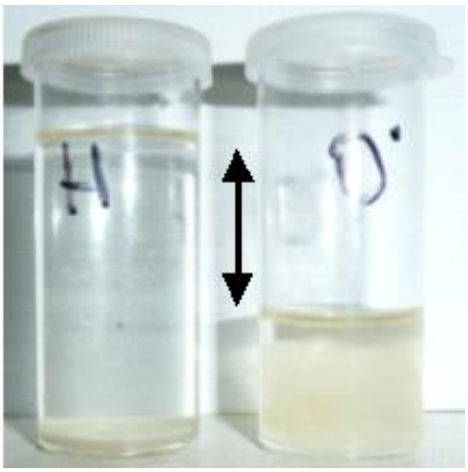

Figure 2. There is a swelling of starch in water with a different electric potential. Starch does not swell at all in water with a potential of –500 mV even with intensive stirring (left), but actively swells in water with a potential of +500 mV without any stirring (right).

Water with negative potential was obtained by bubbling uncharged water with hydrogen gas (left); water with a positive potential was obtained by bubbling uncharged water with gaseous oxygen (right) [1].

Water with positive potential evaporates even from a closed plastic flagon (right): the arrow shows how much during the day the level of such water has decreased.

Both waters used had 20 – 22 °C [11, 12].

It is probably no less important to note in the aspect of the stated topic that water with a positive potential has exceptional penetrating ability, due to which it can penetrate plastic (Figure 2, right); so, apparently, it is this ability of positively charged water that determines its hydrating ability.

In any case, doctors should be aware of the existence of physical phenomena (Figures 1, 2) that allow hypothesizing that intense breathing initially promotes thrombosis of the pulmonary vessels, and then thrombosis of the vessels of the heart and brain. Although this hypothesis is quite unexpected for many doctors (in particular, for those who consider thrombosis as a result of an imbalance between various “thrombogenic factors” and various “protective mechanisms” [3 – 10]), it still seems useful to extrapolate it to the human body and discuss the results of such extrapolation.

Discussion:

Inhaled air is usually considered solely as a supplier of oxygen for the human body. Given the data that prove the ability of air flows to positively electrify water environments (Figure 1, right), such a consideration of inhaled air is undoubtedly one-sided. It is therefore not surprising that the ability of inhaled air to positively electrify the lungs is not even considered by doctors. Accordingly, it is not surprising that doctors do not take into account that the positive electrification of the lungs by inhaled air promotes the formation of blood clots in the pulmonary blood vessels, similar to the way hydrogels are formed in water that has previously been positively charged by oxygen flows (Figure 2, right). Thus, it is apparently precisely this one-sided perception of air that prevents doctors from realizing that intense breathing can cause a positive electrification of the lungs, thereby turning the pulmonary blood vessels into one of the most suitable places for the formation of blood clots. Taking into account all these considerations, it is not surprising that specialists studying thrombosis, in particular thrombosis of the pulmonary vessels, do not even suspect that they can be caused by purely physical phenomena, and therefore continue to consider exclusively biochemical stimulators of thrombus formation [3 – 10, 13, 14].

It is also not surprising that specialists writing about coronary thrombosis [15 – 19] still do not take into account that the blood entering the heart through the pulmonary circulation (Figure 3, top) acquires a positive charge in the lungs and, accordingly, a tendency both to form its own thrombi and to retain those that enter with the blood from the lungs.

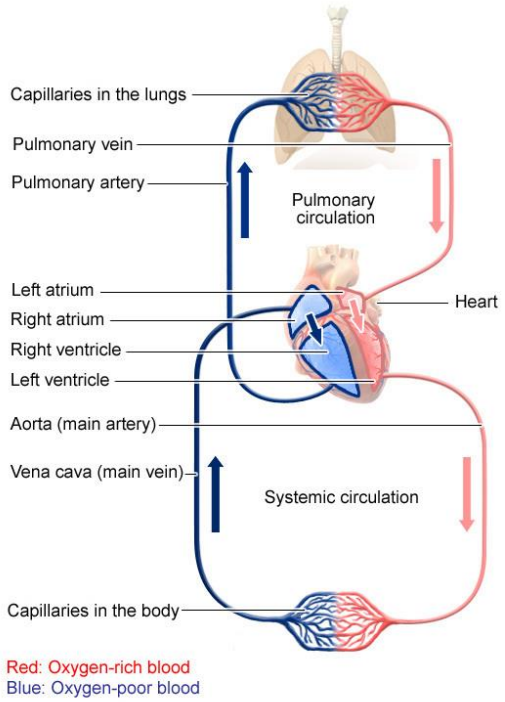

Figure 3. This diagram should give an adequate idea of the structure and functioning of the human circulatory system, according to experts from the Institute for Healthcare Quality and Efficiency, Cologne, Germany.

To further demonstrate the possible contribution of intense breathing to thrombus formation, it is useful to consider its role in the development of cerebral ischemia. At the outset of this consideration, it is worth realizing that: the human brain is supplied with blood that has not yet lost its positive charge, and, accordingly, has retained the tendency both to form its own thrombi and to retain those that come with the blood; it is worth noting that this consideration takes into account both the short length of the carotid arteries [20 – 22] and the tendency of any positive charges on Earth to move upward, as in clouds (Figure 4).

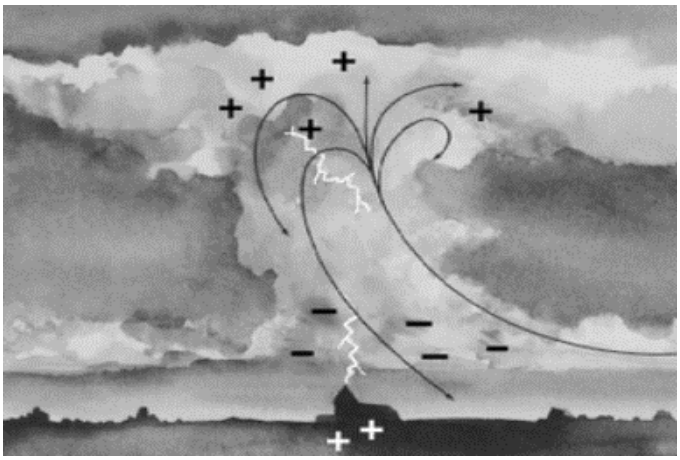

Figure 4. Polarization of clouds: the lower part of a typical cloud has a negative charge, and the upper part has a positive charge; the bodies of both standing and sitting people are polarized in a similar way [11, 23].

All this taken together indicates that the brain of a sitting or standing person is saturated with positive charges, just like the tops of the clouds (Figure 4). This, in turn, indicates that the brain of a sitting or standing person is itself a place that promotes the formation of blood clots, of course, taking into account the result shown in Figure 2, on the right. At the same time, developing the idea that it is the positive electrification of the lungs that ensures the formation of blood clots in them, it is logical to assume that these blood clots are saturated with positively charged water, which determines their total positive charge. Thus, it is quite possible that these blood clots a priori have a tendency to move upward, that is, to the brain, like positive charges in clouds (Figure 4).

To make the last consideration more substantiated, it is worth adding that the forces that distribute the Earth's charges in this way (Figure 4) act constantly [23]; it is also worth adding that these forces are of electromagnetic nature and therefore act on humans no less effectively than on clouds [11].

Thus, it appears that extrapolation of the results presented in Figures 1 and 2 to the human body is quite productive. Thus, it is precisely this extrapolation that creates the basis for revising traditional views (which are currently predominantly biochemical [3 – 10, 13 – 22]) on the most common cases of thrombosis. Moreover, it is precisely this extrapolation that finally allows explaining the positive results of hydrogen inhalation

in the treatment of pulmonary, cardiac and cerebral ischemia [24 – 30]. Apparently, it is precisely this productivity that confirms the adequacy of the proposed hypothesis and, accordingly, allows hoping that the proposed conclusions are sufficiently substantiated.

Conclusion:

Thus, the proposed hypothesis shows that atmospheric oxygen is not only a source of life, but also the cause of positive electrification of human organs and, consequently, those diseases that are caused by thrombosis. This, in turn, allows recommending that patients reduce their breathing rate from 15 – 17 times, which is considered normal, to 6 times, as recommended by yogis [31]; it is perhaps worth adding here that this goal can be achieved quite quickly by performing breathing exercises that include holding the breath, such as the corresponding pranayamas.

On the other hand, a similar therapeutic effect can be achieved by using air ionizers that produce negative air ions; it is probably clear that inhaling air saturated with these ions can significantly hinder the positive electrification of the lungs that occurs when breathing ordinary air.

Apparently, both these advices can be especially useful for the residents of the oceanic coasts of the USA, considering that these coasts are constantly enriched with hydrogen ions that curry positive charges [32]. At the same time, these same advices can be useful for residents of cloudy regions, given the ability of clouds to positively electrify subcloud areas (Figure 4, below), of course, due to electrostatic induction [33].

Thus, the proposed hypothesis of thrombus formation allows proposing quite acceptable means that can either completely prevent thrombus formation or significantly reduce its probability; it seems that it is precisely this feature of the proposed hypothesis that fundamentally distinguishes it from the previous ones.

Finally, it is worth adding that the proposed hypothesis can be developed in future. So, it seems that this hypothesis can be effectively used to explain venous thrombosis associated with diabetes [34 – 37]. Thus, following the logic used earlier, it can be assumed that the positively charged water contained in positively charged blood may also hydrate the glycosylated inner surfaces of blood vessels [38, 39], making them preferred sites for thrombus adhesion. This, in turn, helps explain why diabetics with high blood glucose levels have blood vessel linings that are prone to trapping blood-borne clots. This assumption, in particular, indicates that N-glycosylated inner walls of blood vessels are capable of retaining not only calcium salts, as described in [39]. At the same time, this assumption explains the therapeutic effect of hydrogen inhalation in patients with diabetes mellitus [40, 41] and, apparently, allows us to recommend that diabetics engage in breathing exercises associated with holding their breath and use ionizers that produce negative air ions; it may be worth adding that the therapeutic effect of slow breathing on diabetics has already been noted [42].

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