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Review Article

Diseases as a legacy of the Great Oxidative Event, or how mitochondria became pathogenic and sweating became healing

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Abstract

It is shown here that the appearance of oxygen gas in the earth's atmosphere turned mitochondria into sources of uncompensated hydrogen ions, pathogenic for humans. It seems that understanding this can be fundamentally important for doctors seeking to identify the origin of human diseases. At the same time, it seems that it is precisely this understanding that allows perceiving sweating, in which hydrogen ions are removed from the human body, as a universal therapeutic means, in particular an antitumor means.

Keywords: cancer; ischemia; thrombosis; ROS; sweating; hydrogen therapy; carboxytherapy

Introduction

At the outset, it is worth making a few comments regarding the relationship between the evolution of the Earth's atmosphere and the evolution of cellular life on Earth. So, it is now believed that the atmosphere of ancient Earth was quite rich in hydrogen gas and carbon dioxide, but did not contain any oxygen gas at all (Figure 1, left).

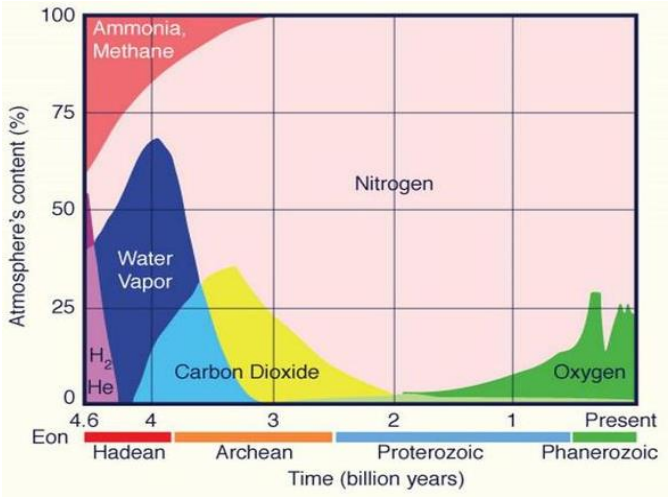

Figure 1. This is a diagram that shows current views on the evolution of the Earth's atmosphere [1 – 3].

Apparently, all this gives reason to conclude that the ancient waters, in which cellular life is believed to have originated no later than 4 billion years ago [4 – 10], were also rich in hydrogen and carbon dioxide and also did not contain oxygen. This, in turn, suggests that the disappearance of hydrogen and carbon dioxide gas from the earth's atmosphere and, as a consequence, from the earth's water bodies, led to the disappearance of

conditions most suitable both for the emergence of the first cells and for their life activity. However, the fact that cellular life forms have survived to this day indicates that ancient cells found a means to compensate for this disappearance. Given this, the fact that the mitochondrial Krebs cycle is a powerful producer of both atomic hydrogen and molecular carbon dioxide (Figure 2) deserves attention.

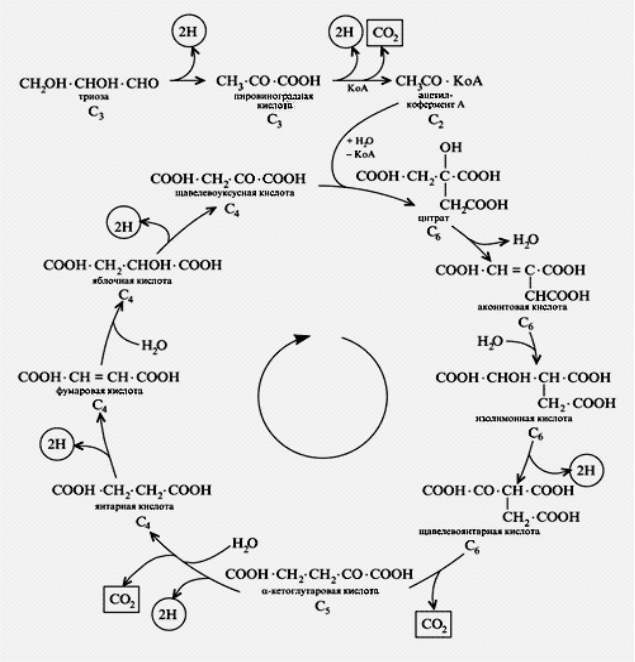

Figure 2. This is a Russian-language diagram of the Krebs cycle, which turned out to be most suitable for this article; the suitability of this diagram lies in the fact that it is free of many details that obscure the fact that the main mitochondrial products are atomic hydrogen and carbon dioxide [11].

Pairs of hydrogen atoms released in the reactions of the Krebs cycle are enclosed in circles; it is now believed that these hydrogen atoms are targeted to reduce FAD and NAD, in accordance with [12, 13].

Carbon dioxide molecules, also released in the reactions of the Krebs cycle, are enclosed in squares.

So, it is likely that it was the absorption of mitochondria that allowed ancient cells to bring the gas composition of their cytoplasms closer to the gas composition of ancient waters. It is also likely that it was precisely this absorption that allowed ancient cells to retain the restorative properties of their cytoplasm, which are believed to have been characteristic of both the ancient Earth's atmosphere and ancient Earth's waters [4].

Apparently, it is worth noting here that the latter assumption is based on the electron-donating properties of hydrogen gas in aqueous media (Figure 3, left).

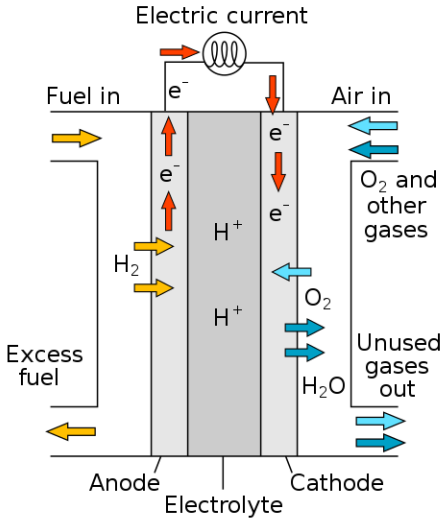

Figure 3. This is a diagram of an air-hydrogen electrochemical cell. This diagram shows that the negative electrization of water occurs when it is bubbled with hydrogen gas (left), while the positive electrization of water occurs when it is bubbled with air (right); respectively, the red arrows indicate the movement of electrons from a compartment containing an aqueous solution bubbled with hydrogen gas to a compartment containing an aqueous solution bubbled with air [11].

At the same time, it was precisely this absorption of mitochondria that allowed ancient cells to enrich their cytoplasms with carbon dioxide and, therefore, reproduce the buffering properties of ancient reservoirs in them [14]; this is apparently confirmed by the fact that the buffering properties of biological fluids of modern mammals, including humans, are still based on the buffering properties of aqueous solutions of carbon dioxide generated in the Krebs cycle (Figure 2) [15 – 17].

Thus, there is enough reason to assume that the mitochondria absorbed by ancient cells initially performed a purely compensatory, rather than bioenergetic, function. At the same time, there is no doubt that it was precisely this compensatory function that mitochondria were able to perform only before the appearance of oxygen gas in the earth's atmosphere (Figure 1, right), called the Great Oxidative Event [18 – 20]. So, it was the simultaneous appearance of gaseous oxygen in the cellular environment that undoubtedly transformed mitochondria from a means of maintaining a favorable gas composition of the cell cytoplasm into sources of superoxide anions [21 – 24] and, in parallel, hydrogen ions (Figure 4):

$$O_2 + H^{\bullet} \rightarrow O_2^{-} + H^{+} \quad (1).$$

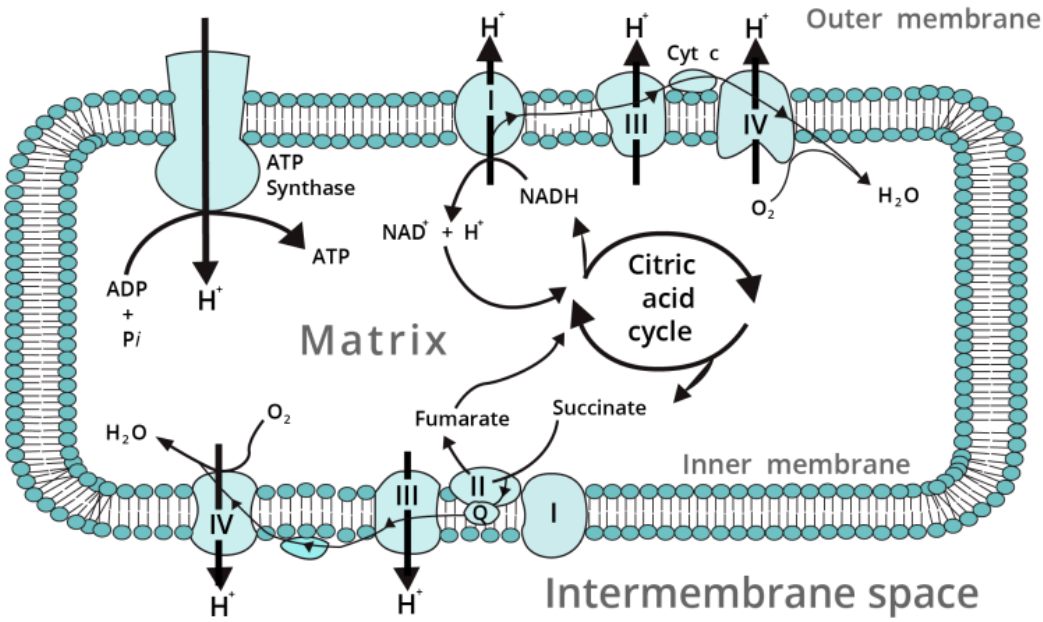

Figure 4. This is a typical diagram of a working mitochondrion: during oxidative phosphorylation, molecular oxygen is converted into superoxide anions and hydrogen atoms into protons, which are released by mitochondria (according to [12, 13]).

Apparently, it is worth noting here that it is precisely this parallelism that allows comparing mitochondria after the Great Oxidative Event with real air-hydrogen electrochemical cells (Figure 3). One way or another, it was the Great Oxidative Event that transformed mitochondria not only into sources of ATP (Figure 4), but also into sources of substances that are now considered the root causes of many human diseases, including senile and cancer [25 – 45]. Since a person cannot help but breathe, and it is impossible to remove mitochondria from his cells, this state of affairs seems insoluble, at least from an ordinary point of view. With that in mind, it's worth discussing why sweating might solve this problem.

Discussion

In beginning this discussion, one should also take into account the exceptionally high hydration capacity of positively charged water (that is, water enriched with uncompensated protons) [46], due to which it is able to overhydrate both human tissues and cells, thereby promoting numerous diseases, in particular tumor growth [36, 40 – 43, 47, 48]; it seems that the fact that positively charged water dissolves even graphite (Figure 5), which is considered water-insoluble [14], should be considered as convincing confirmation of the exceptionally high hydration capacity of such water.

So, the appearance of molecular oxygen in the Earth's atmosphere (Figure 1, right) determined the ability of mitochondria to create proton gradients (Figure 4), on which cellular bioenergetics is believed to be largely based [12, 13, 49 – 53], and at the same time pathogenic superoxide anions and protons (1). Thus, a situation arose in which mitochondria simultaneously became sources of both cellular energy and human diseases.

Thus, the Great Oxidation Event posed a truly Hamletian question to many forms of highly organized life: to be or not to be? (Apparently, it is worth recalling here that the cells of all multicellular organisms, including humans, contain mitochondria [54].)

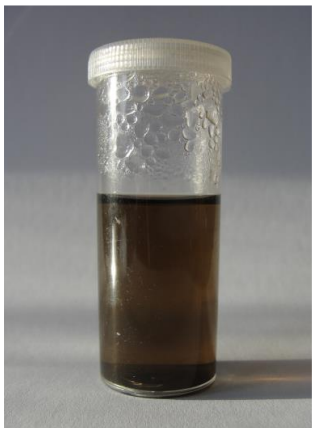

Figure 5. This is a solution obtained by vigorously shaking graphite powder with positively charged water. It is noteworthy that sediment does not appear in this solution for many years (it is worth taking into account that graphite is considered insoluble in water [14]).

Fortunately, the electromagnetic forces of the Earth, which cause the evaporation of exclusively p ositively charged water, that is, water whose positive charge is provided by uncompensated protons [46, 55, 56], are able to resolve this seemingly intractable situation. To understand this, you should read, that these electromagnetic forces are so powerful that they can even separate water vapour into positively charged, which moves upward, and negatively charged, which moves downward, as in clouds (Figure 6).

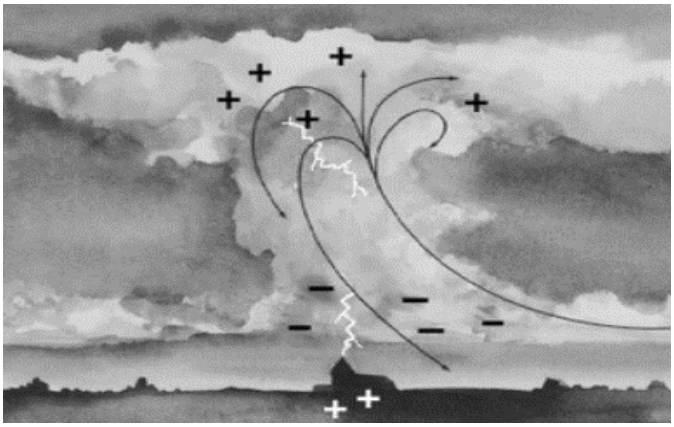

Figure 6. Cloud polarization: the top of a typical cloud is positively charged and the bottom of a typical cloud is negatively charged [17, 55, 56].

Given all this, it seems unsurprising that sweating is not so much a means of cooling the human body as a means of ridding it of excess protons, the root cause of a number of diseases, including cancer. Therefore, in particular, intense sweating, especially at night, should be considered not so much as a sign of cancer, but as a means of cancer patients' bodies to fight it. At the same time, the proposed perception of sweating appears to be prompting a reconsideration of the nature of the anticancer effects of agents such as radiation therapy and chemotherapy that increase sweating in cancer patients. At the same time, it is precisely this perception of sweating that allows perceiving the fever of cancer patients as a means by which their bodies increase their temperature and thereby activate sweating. Obviously, all this explains why fever is a common accompaniment of cancer [57 – 63]. Anyway, all these considerations can be useful to those proponents of anticancer hyperthermia who seek to explain its therapeutic effects [64 – 66].

Apparently, all these considerations allow concluding that unimpeded sweating is an important means of maintaining human health, in particular, a means of preventing cancer. Therefore, cotton underwear and cotton bed linen, which absorb sweat well, can be considered as medicinal, in particular, anti-cancer agents.

Accordingly, the difficulty sweating can be considered the cause of numerous human diseases, including cancer. Given this, antiperspirants that effectively prevent sweating should be considered pathogenic agents, in particular carcinogenic [67].

Conclusion

Although the approach proposed here, essentially evolutionary, is unusual for doctors, it seems completely justified. Thus, it is the proposed approach that allows doctors to perceive a number of modern human diseases, including cancer, as a legacy of the Great Oxidative Event and, in particular, allows them to explain why mitochondria and clean air have become potentially harmful to people, and sweating has become healing.

If all of the above seems too paradoxical, it is useful to remember the health and longevity of the highlanders. So, it seems that both the health and longevity of these people are due to the low pressure of mountain air, which causes both rarefaction of the inhaled air and easier sweating (the latter is due to the fact that low atmospheric pressure promotes evaporation water [68, 69].

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