

Commentary

Could the Novel Paradigm for NO (Nitric Oxide) be involved in Autism?

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In the December issue of Medical Hypotheses, an article proposed a paradigm shift for NO (Nitric Oxide) and for autoimmune diseases, Alzheimer's disease being taken as a model [1]. In this article, the author demonstrated that NO is involved in the fight against oxygen bubbles. NO is a gaseous radical resulting from the conversion of arginine by NO-synthase. Oxygen nano bubbles are managed by the NADPH (or xanthine) oxidase-NO antibubble bio machinery (Figure 1). The three-oxygen particle $O_2^{-} 2O_2$ nano bubbles are broken up by



NADPH (or xanthine)-oxidase as it releases gaseous superoxide O and the combination of superoxide with NO provides the change from one state of matter to another [2,3] avoiding any danger of a bubble enlargement. Reactive Oxygen Species (ROS) are identified as oxygen bubble scavengers, since they are not gaseous. The recycled twooxygen particle O, O, nano bubble works as an activated gas nucleus, engulfing close oxygen particles. The increase in the surrounding pressure (see δP ' arrow) is expected to enhance the oxygen nanobubble nucleation, resulting in an increased NADPH oxidase activity(= increased superoxide) and an increased bubble scavenging (NO synthase induction, increased SOD activity and iron bioavailability, hence increased ROS). To summarize, and as depicted in the diagram, the antibubble bio machinery scavenges oxygen overload arising from oxygen nano bubbles after a 3-stage enzymatic pathway: nano bubble fission, implosion and scavenging [4]. In certain conditions, such as SOD activity or depending on iron bioavailability, oxygen quantum bubbles could be recycled.

References

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