

Antioxidant Properties of Anesthetics: The Pharmacologists, The Surgeon and The Anesthesiologists

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General anesthetics include a series of gaseous and intravenous hypnotic agents commonly administered for induction and maintenance of anesthesia as well as for sedation of intubated, mechanically ventilated patients in intensive care units (ICU).

General anesthesia can deteriorate immunological defense mechanisms while inducing an inflammatory reaction. Generalized inflammatory reactions involve leucocytes which in turn release inflammatory mediators and free oxygen radicals.

Alternatively, some anesthetics possess antioxidative properties that have been demonstrated both in vitro and in vivo, which make pharmacologists; the surgeon and the anesthesiologists feel interest and carried out ample of research that demonstrated different beneficial effects of antioxidant on different organ system and in vitro study. Among those anesthetics, propofol seems the most versatile in their potent antioxidant properties; at same concentrations; as compare to butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT) and α -tocopherol, propofol was shown that it had effective reducing power, DPPH (1,1-diphenyl-2-picrylhydrazyl) free radical scavenging, superoxide anion radical scavenging, hydrogen peroxide scavenging and metal chelating activities.

We discuss and focus on some of the antioxidant properties of anesthetics in various experimental models and if they may be considered efficient therapeutic tools in counteracting oxidative stress during general anesthesia and sedation in ICU, even though use as an clinical antioxidant in the future.