

Melatonin's heart protective effects not related to its antioxidant properties

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Although melatonin does improve the outcomes of induced heart attacks in rats, those improvements are not the result of its antioxidant effect, new research finds. The study comparing antioxidant activity and heart protection will be presented today at the American Physiological Society (APS) annual meeting at Experimental Biology 2019 in Orlando, Fla..

Antiarrhythmic agents are substances that treat irregular electrical activity in the heart. Melatonin has previously been shown to have antiarrhythmic effects, with the assumption that this was due to its known antioxidant properties. In this current study, an international team of researchers examined precisely how melatonin affected the heart in a rat model of heart attacks.

One group of rats was given 10 mg of melatonin daily for seven days, while another received a placebo. Researchers then measured the electrical activity in the rats' hearts before, during and after a cardiac event. They later examined the hearts for measures of oxidative stress and [antioxidant activity](#).

Ventricular tachycardia (VT) and [ventricular fibrillation](#) (VF) are two kinds of dangerous irregular electrical activity in the heart that can result from a [heart attack](#). Incidence of both VT and VF was reduced in melatonin-treated rats. A marker of antioxidant activity was also higher in the treated rats. However, there was no association between the presence of oxidative stress and incidence of irregular [electrical activity](#).

In previous work, the research team observed that blocking melatonin-specific receptors removed the antiarrhythmic benefit of melatonin. When taken together with this current study, these results suggest that melatonin's protective effects for the heart "are related to its antiarrhythmic action, and this effect is related not to antioxidative properties but to melatonin receptor stimulation," said lead author Jan Azarov, Ph.D., of the Komi Science Center, Komi Republic, Russian Federation.

More information: Jan Azarov, Ph.D., of the Institute of Physiology of the Komi Science Center, Syktyvkar, Komi Republic, Russian Federation, will present the poster "Antiarrhythmic effects of chronic melatonin treatment are not associated with its antioxidative action in rat myocardial ischemia/reperfusion model" on Tuesday, April 9, in West Hall B of the exhibit hall of the Orange County Convention Center.

Provided by American Physiological Society

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