Free radicals production in rat's gastric mucosa during chronic nitrate intoxication

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Nitrate intoxication is a serious problem both in Ukraine and in USA. In Ukraine the predominant source of nitrate intoxication is groundwater. That is especially true to regions which are mostly agricultural such as Poltava, Kirovograd, and Nikolayev regions. In USA similar problems arise in Oklahoma, Kansas, Nebraska, Iowa and several other states. Groundwater is not the only source of excessive nitrate intake. Recent trend in creation of nitric oxide (NO) releasing medications can lead to chronic nitrate intoxication in regions where nitrates are abundant in groundwater. Nitrates mostly undergo metabolic changes in gastrointestinal tract. So stomach is one of the first organs to suffer from chronic nitrate intoxication. There are evidences in literature indicating that nitrates can shift NO production. Most scientists tend to blame nitrate-nitrite reduction for the changes. However there is clearly not enough information about functioning of nitrate-nitrite reductases. The superoxide anion radical ($\bullet O_2$-) production also changes during nitrate intoxication. Since •O2- is one of the most common reasons of cell injury and death increase in its production may lead to tissue damage. Functioning of superoxide dismutase (SOD) may also change during nitrate intoxication providing even more risks to tissues.

In this seminar, I will discuss the changes in production of NO and $\bullet O_2$- during chronic nitrate intoxication in gastric mucosa of rats.

Speaker Biography

Akimov Oleh Yeugenovich is a PhD student in HSEEU "Ukrainian medical stomatological academy", department of Pathophysiology. Graduated from the Faculty of Dentistry of the HSEEU "Ukrainian Medical Stomatological Academy" in 2009. Works at the department since 2015. PhD thesis theme: "Mechanisms metabolic disorders in gastric mucosa of rats under conditions of combined excess intake of sodium nitrate and sodium fluoride and their correction by enterosorbents". He is the author of over 20 scientific works and 3 patents for utility models

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