

Abstract

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Oxidation flux change on spermatozoa membrane in important pathologic conditions leading to male infertility.

Wiwanitkit V.

Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.

BACKGROUND: Free radicals or reactive oxygen species mediate their action through proinflammatory cytokines and this mechanism has been proposed as a common underlying factor for male infertility. There is extensive literature on oxidative stress and its role in male infertility and sperm DNA damage and its effects on assisted reproductive techniques. However, there has never been a report on the oxidation flux change in spermatozoa.

METHODS: Here, the author determined the oxidation flux change in such hypoxic cases, using the simulation test based on nanomedicine technique is used. Of interest, change of flux can be detected. The main pathogenesis should be the direct injury of membrane structure of spermatozoa by free radicals which can lead to sperm defect.

RESULTS: Therefore, this work can support the finding that the oxidation flux change corresponding to oxygen pressure change in spermatozoa does not exist. However, the flux change can be seen if the membrane thickness of spermatozoa is varied. Thin membrane spermatozoa are more prone to oxidative stress than thick membrane ones. The defect in the enzymatic system within the spermatozoa should be a better explanation for vulnerability of spermatozoa to oxidative stress.

CONCLUSION: The use of enzymatic modification technique by antioxidants can be useful alternative in management of male infertility.

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