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Total Salivary Antioxidant and Serum Antioxidant Levels in Recurrent Aphthous Stomatitis: A Case Control Study

Les Niveaux d'Antioxydants Salivaires Totaux et Sériques dans la Stomatite Aphteuse Récurrente : Une Étude Cas-Témoins

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ABSTRACT

BACKGROUND: Recurrent Aphthous Stomatitis (RAS) is an inflammatory lesion of the oral mucous lining, accounting for 5 to 25% of the chronic oral lesions. Studies have suggested that RAS patients have increased oxidative stress (OS) and impaired antioxidant capacity, and non-invasive screening using saliva assessment of oxidative stress and antioxidant capacity may be beneficial in RAS.

OBJECTIVES: This study determined total salivary antioxidant concentration and compared it to the total serum antioxidant levels in patients with RAS and controls.

METHODS: This was a case-control study of subjects with RAS and without RAS. Unstimulated mid-morning saliva was collected using the spitting method, and venous blood was collected into a plastic vacutainer. Saliva and blood samples were assayed for total oxidative stress (TOS), total antioxidant capacity (TAC), ferric reducing antioxidant power (FRAP) and glutathione.

RESULTS: A total of 46 subjects, 23 with RAS and 23 healthy controls, participated in the study. Twenty-five (54.35%) were males, and 21(45.65) were females aged 17 to 73 years. We identified an increase in salivary and serum TOS (10.06 ± 7.49 , $8.26 \pm 2.18/15.00 \pm 8.92$, $9.36 \pm 3.55 \mu\text{mol/L}$) and OSI while the TAC (16.85 ± 1.97 , $17.07 \pm 2.36/17.07 \pm 2.36$, $2.97 \pm 0.29 \text{mM/L}$) and significantly GSH (0.02 ± 0.02 , $0.10 \pm 0.02/0.10 \pm 0.02/0.19 \pm 0.11 \mu\text{mol/ml}$) were decreased in serum and saliva of the RAS group compared to controls respectively. In addition, there were positive correlations between salivary and serum levels of FRAP $r=0.588$, $p=0.003$ and glutathione $r=0.703$, $p<0.001$ in RAS subjects and controls.

CONCLUSION: Oxidative stress is associated with RAS, and saliva can be used as a biological marker for glutathione and FRAP. *WAJM 2023; 40(5): 504–508.*

Keywords: Recurrent Aphthous Stomatitis, Antioxidant, Saliva, Oxidative Stress.

RÉSUMÉ

CONTEXTE: La stomatite aphteuse récurrente (SAR) est une lésion inflammatoire de la muqueuse buccale qui représente 5 à 25 % des lésions buccales chroniques. Des études ont suggéré que les patients atteints de stomatite aphteuse récurrente présentent un stress oxydatif (SO) accru et une capacité antioxydante altérée, et qu'un dépistage non invasif utilisant l'évaluation salivaire du stress oxydatif et de la capacité antioxydante pourrait être bénéfique dans la stomatite aphteuse récurrente.

OBJECTIFS: Cette étude a déterminé la concentration totale d'antioxydants dans la salive et l'a comparée aux niveaux totaux d'antioxydants dans le sérum chez des patients atteints de SRA et chez des témoins.

MÉTHODES: Il s'agit d'une étude cas-témoins portant sur des sujets atteints ou non du syndrome respiratoire aigu sévère. De la salive non stimulée a été recueillie en milieu de matinée par la méthode du crachat, et du sang veineux a été prélevé dans un vacutainer en plastique. Les échantillons de salive et de sang ont été analysés pour déterminer le stress oxydatif total (TOS), la capacité antioxydante totale (TAC), le pouvoir antioxydant réducteur ferrique (FRAP) et le glutathion.

RÉSULTATS: Au total, 46 sujets, 23 atteints de SRA et 23 témoins sains, ont participé à l'étude. Vingt-cinq (54,35 %) étaient des hommes et 21 (45,65) des femmes âgés de 17 à 73 ans. Nous avons identifié une augmentation des TOS salivaires et sériques (10.06 ± 7.49 , $8.26 \pm 2.18/15.00 \pm 8.92$, $9.36 \pm 3.55 \mu\text{mol/L}$) et de l'OSI tandis que le TAC (16.85 ± 1.97 , $17.07 \pm 2.36/17.07 \pm 2.36$, $2.97 \pm 0.29 \text{mM/L}$) et significativement le GSH (0.02 ± 0.02 , $0.10 \pm 0.02/0.10 \pm 0.02/0.19 \pm 0.11 \mu\text{mol/ml}$) ont été diminués dans le sérum et la salive du groupe RAS par rapport aux contrôles respectivement. En outre, il y avait des corrélations positives entre les niveaux salivaires et sériques de FRAP $r=0,588$, $p=0,003$ et de glutathion $r=0,703$, $p<0,001$ chez les sujets RAS et les témoins.

CONCLUSION: Le stress oxydatif est associé au SAPR et la salive peut être utilisée comme marqueur biologique pour le glutathion et la FRAP. *WAJM 2023; 40(5): 504–508.*

Mots clés: Stomatite aphteuse récurrente, Antioxydants, Salive, Stress oxydatif.

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