Effect of Complete Denture on Memory and Depression Status in Elderly Patients

1Bahrudin Thalib, 2Ike D Habar, 3Vinsensia Launardo, 4Asmawati Amin, 5Rafikah Hasyim

ABSTRACT

Aim: One common complaint among the elderly is memory decline and tooth loss due to aging. Tooth loss affects masticatory function and reportedly may also contribute to the occurrence of memory disorders and depression. The aim of this study was to analyze the influence of complete denture use on memory capacity and depression level in elderly patients.

Materials and methods: The study was conducted at Hasanuddin University Dental Hospital. The study was a clinical experiment with nonrandomized design with pre- and post-tests. A purposive sampling technique was used with six fully edentulous patients willing to participate. Memory status was measured using the Mini-Mental State Examination (MMSE), and level of depression was evaluated using the geriatric depression scale (GDS). Memory status and level of depression measurements were performed before using complete dentures and 1 month after using complete dentures. The data were analyzed using statistical paired t-test.

Results: At the 95% confidence level p < 0.05, the results showed a significant difference (increase) between initial MMSE average value (25.67) and the final MMSE average value (26.83). There was no significant change in the level of depression p > 0.05 between initial GDS (5.17) and final GDS (4.17).

Conclusion: This study indicates that the use of complete dentures by fully edentulous patients may improve memory status, but does not seem to have a significant impact on depression level.

Clinical significance: The relationship between tooth loss, depression, and memory is a complex relationship, where depression could be both a cause and an effect of memory dysfunction. Improvement of memory status using complete dentures will help to restore confidence level of elderly patients.

Keywords: Complete denture, Depression, Elderly, Memory status.


Source of support: Nil

Conflict of interest: None

INTRODUCTION

After tooth eruption is complete, teeth occlude and perform the function of mastication or chewing, and the brain will begin to store new memories. Sensory receptors in the periodontal ligament adapt to a variety of functions, including mastication. After occlusion-mastication function is stabilized, sensory receptors that include dental periodontal mechanoreceptors, proprioreceptive receptors, nociceptive receptors, and other related receptors will build a functional neuronal connection with the sensory cortex, consciously or unconsciously. Having been performed over the years, the stable occlusion-mastication functional memory has become a basic function and an enjoyable physical action.1,2

The stable action of occlusion-mastication is not only a mechanical function. Before starting to eat an apple, for example, a memory that connects the occlusion-mastication action will remind us of the taste experienced when we bite the apple, and we would expect a crispy, juicy, fragrant, and sweet sensory input. Memories picked up shortly before this action are memories derived from visual sensory receptors, olfactory, gustatory, and periodontal mechanoreceptors. Once the apple is bitten, all sensory receptors will begin to identify, evaluate, and enjoy the fruit. It is a harmony of recognition, memory, and reflexes, consciously or unconsciously. Teeth play an important role in this process, enabling precise sensory receptors and comprehensive thorough coordination of this occlusion-mastication action.3

The occlusion-mastication action can be compared with “symphony orchestra” where each tooth is a musician playing their respective instruments and they are not interchangeable. If one or more musicians (teeth) change their function or missing, then the harmony of the orchestra will be affected by temporary or long-term vacancy, causing mental and physical stress. The brain will remap the cortical sensory and motor pathways to adapt to the stress and maintain the effectiveness of occlusion-mastication.4,7

Memory and intellectual loss could make a previously independent and self-confident person lose their confidence. Furthermore, the elderly are particularly vulnerable to depression. For severe memory and intellectual loss, this process can happen in a short time and have a fatal outcome. Therefore, it is important to prevent