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## Guest Editorial

# Association between Removable denture wearing and Pneumonia among elderly population

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Globally Pneumonia is a major disease among the elderly with high risk of morbidity and mortality. The 2010 Golden Burden of Disease study reported that lower respiratory tract infections including pneumonia are the fourth leading cause of death globally. Poor oral health, amongst other causes is increasingly recognized as a major risk factor for pneumonia among the elderly population.<sup>1</sup>

Edentulism, especially among geriatric patients remains a common problem affecting a significant population across the world. It is often considered as the ultimate marker for predicting the pressure and burden on oral health.<sup>2</sup> There are many studies being done in the past that indicated a relationship between removable denture wearing and pulmonary diseases including pneumonia.<sup>1</sup> Dentures are considered to be a potential reservoir of various microorganisms. Many of these are associated with COPD (Chronic obstructive pulmonary disease) and aspiration pneumonia. Respiratory pathogens like *Streptococcus pneumoniae*, *H. influenzae*, *Staphylococcus* and *Candida* species have been found in the denture base.<sup>3-6</sup>

Recently, a study is published in the journal (JDR journal of clinical and translational research) which proved that wearing removable dentures is a risk factor for pneumonia incidence among older population which comprised patient at the University of Rochester Medical Center from 2010 to 2018. Patients chosen for the study were above 65yrs

of age. The researchers reviewed medical and dental electronic dental records of all patients between 2010 to 2018 for data collection. The exposure was removable denture wearing. The main outcome variables were the incidence of pneumonia and time to event of pneumonia. The association between pneumonia onset and wearing removable dentures were examined after adjusting for demographics, socioeconomic status and medical and dental conditions.<sup>3</sup>

Based on the data collected, results showed that annual pneumonia incidence rate per 1,00,000 persons were 1,191 in the denture wearing group and 128 persons in the non denture wearing group. Thus, through this study, many pathways are speculated to link denture wearing and incidence of pneumonia. First, removable dentures may act as a reservoir for respiratory and systemic opportunistic infections.<sup>3,7-9</sup> The denture base made of acrylic favors accumulation of plaque. If we compare plaque accumulated on teeth and denture base, it is reported that there is a predominance of fastidious anaerobes in the denture base because of the inflammatory serum released due to mucosal irritation among denture wearers when compared with dental plaque accumulated on the teeth.<sup>3,10-13</sup> Continuous aspiration of the microorganisms accumulated on the denture base may predispose the denture wearers to increased risk of respiratory infections like pneumonia.

Another reason could be that lack of maintenance of the denture hygiene might introduce a pathway of the infection.

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When not in use, elderly persons may leave their dentures in a non hygienic environment which leads to the accumulation with pathogenic microorganisms that do not belong to the normal oral flora.<sup>3,7</sup>

Thus, it was concluded that wearing removable dentures can increase potential risk of pneumonia among geriatric patients although further studies are needed to discern the role of denture related microorganisms and other related comorbidities.<sup>3</sup> Adoption of routine oral hygiene practices including mechanical cleaning, and regular use of cleansing agents could help to reduce the risk of respiratory infection among the elderly population.<sup>9</sup>

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### Conflict of Interest

The authors declare that there are no conflicts of interest in this paper.

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