



Rheumatoid Arthritis: It's Effects on Oral Cavity in Elderly Population

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I. INTRODUCTION:

The aging population is indeed a significant global demographics trend in the 21st century. Many countries, particularly in the 20th century, experienced what is often referred to as a "population explosion". This period saw rapid population growth due to decrease in mortality rates, improved healthcare and increased life expectancy. From this trend it is clear that the world's population will continue to rise and reach new heights. From 2022 census, it is clear that out of there are total 771 million senescent people in the world who are above 65 years of age, accounts for total of 10% of world's population. This number is increasing exponentially and expected to become 16% by the end of 2050. Japan has highest elderly population with 30% of people above 65 years of age followed by Italy with 24% and Finland with 23%.

H.S. Borji (August 2021) claims that as the elderly population is increasing day by day in the world, this is directly affecting the world's economy due to decrease in working-age group. Decreases in working-age group will lead to shortage of workers in the countries and businesses will be affected. This in turn is linked to increase in high labor cost, delayed business expansion and reduced international competitiveness, thereby causing inflation and leads to the development of vicious price-wage cycle. To combat this situation, some countries like Canada, USA, Australia, New Zealand are inviting a greater number of immigrants in their country so that they can increase their work force. According to World Health Organization (October 01, 2022), one in 6 people in the world will be aged 60 years or over. Common medical condition associated with aging included osteoarthritis, rheumatoid arthritis, diabetes, depression, dementia and so on.

"Rheumatoid Arthritis (RA) is an autoimmune and inflammatory disease i.e. body's own immune system attacks healthy cells in your body causing inflammation". RA mainly attacks the joints in hands, wrists, knees. It mainly damages the synovial tissue connecting bones and joints. People experience different signs and symptoms that may include but not limited to: pain or aching in more than one joint; Stiffness in more than one joint; fever,

weight loss; fatigue; weakness etc. There are number of factors that can lead to RA but Age is most likely associated with the development of the disease. The RA is most commonly seen in adults in their 60's. Almost 1.6% to 1.9% of people aged 60-69 years and 2.5 to 2.8% of those 70 years and older have rheumatoid arthritis. Oral manifestations of rheumatoid arthritis are very severe than oral osteoarthritis.

In some patients the development of RA is initiated by the environmental factors. One example is the use of tobacco which leads to the development of HLA-DRB1 gene and eventually the development of ACPA which lead to the positive RA. RF and ACPA are antibodies are most common auto-antibodies in RA. There is also another pathophysiology associated with Rheumatoid Arthritis which are cytokines and chemokines like Tumor Necrosis Factor, interleukin-6. These activate the endothelial cells which attracts the immune cells within the synovial compartment. The Fibroblast like synovium and inflammatory cells produce RANKL is the hallmark of RA.

According to US National Health Interview Survey, musculoskeletal disorders are common and leading cause of disability in people of 65 years or older. RA, which is musculoskeletal disease, and the diseases of oral cavity have been associated with some serious problems in elderly populations. The old people suffering from RA are often seen struggling to maintain their oral hygiene.

II. OBJECTIVE:

1. To assess the incidence of RA in elderly population
2. To identify the correlation of RA and oral cavity in this population

III. REVIEW LITERATURE:

- Kelsey and Lamster (2008) states that RA affects the joints of hands which makes it difficult to maintain oral hygiene. This along with the inflammatory reactions lead to the progression of periodontal disease and dental caries. High prevalence of severe periodontal disease is found in patient with rheumatoid



arthritis. RA also leads to the development of Temporomandibular disorders.

- Almasi et al. (2021) reported that patients suffering from RA have greater prevalence of periodontitis and also lead to early loss of teeth.
- Kobak and Bes reported that RA is seen in 2% of old population above 65 years of age. The study was conducted in Spain and the results of which showed that out of 100,000 geriatric population (over 60 years of age) 9.1% of men and 14.5% of women are reported to have RA.
- Chang et al. (2023) reported in their study that development of periodontitis and tooth loss have strong association RA. It is very difficult for a RA patient to maintain good oral hygiene.
- Persson (2012) states that there was early loss of teeth reported in patients suffering from RA along with the severe periodontitis. Additional clinical studies supported that there are strong causative links between the development of RA and periodontitis.
- Ranade and Doiphode (2012) claims the association exists between the periodontal disease progression with the molecular pathways of inflammatory disease.

TECHNICAL PROGRAMME OF WORK:

EXPERIMENT

NAME OF THE EXPERIMENT: Evaluation of relation between clinical findings in RA patients with their oral hygiene status and disease progression.

METHODOLOGY:

Case Control Study will be performed on 200 patients with 100 people suffering from RA and 100 without any disease from different ethnicity. Their disease activity (dental caries, severity of periodontitis, gingivitis, oral hygiene) in the oral cavity will be assessed along with their blood samples for antibodies (Almasi S. et al. 2021).

Markers to be assessed to know the progression of dental caries, severity of periodontitis, oral hygiene and gingivitis:

- Gingival Index
- Plaque Index
- Clinical Attachment Level
- Decayed Missing Filled Teeth Index
- Oral Hygiene Index-simplified

Statistical Analysis: Data will be analyzed by using T-Test and Chi-square test.

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