Preventive Dentistry

Preventive Measures for Elderly Population

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The number of elderly people increased in the last few decades because of improved health services programs in general and oral health .The science which deals with old age is Geriatric dentistry.

Geriatric Dentistry is a science which deals with the diagnosis, management and prevention of all types of oral diseases in the elderly population

Ageing is a gradual process reflecting the influence of genetics, life style and environmental over the course of life span. Some body systems are more affected by this process than others

Geriatric Dentistry : During the latter half of the 20th century, the age composition of the population changed dramatically, with more people living to older ages and the older population getting older. This demographic change will have a major impact on the delivery of general and oral-health care, as well as on the providers of these services.

The "elderly" segment of the population is diverse and has been subdivided into the following categories:

- People aged 65 to 74 years are the new or young elderly who tend to be relatively healthy and active.
- People aged 75 to 84 years are the old or mid-old, who vary from those being healthy and active to those managing an array of chronic diseases
- People 85 years and older are the oldest-old, who tend to be physically more frail. This last group is the fastest-growing segment of the older adult population.

Life expectancy is the average number of years a group of individuals born during the same time period or cohort is expected to live. Between

1900 and 1997, life expectancy at birth increased from 46.3 years to 73.6 years for males, and from 48.3 to 79.4 for females

- Life Span is generally defined as the maximal length of life potentially possible .The age beyond which no one can expect to live. Human beings have a life span of approximately 120 years.

- Marital Status: Marital conditions and living arrangements of older persons vary tremendously by gender. Most men spend their later years married and in family settings, whereas most older women spend their later years as widows outside of family settings.

- Living Arrangements: Although approximately one-third of the elderly live alone, the majority of older non-institutionalized adults live in a family setting. However, these figures vary by gender and advancing years

- Health Status :The study of aging includes not only diseases that cause morbidity and mortality but also the conditions that cause disability and decline in independent functioning.

  The three leading causes of death in the elderly are: diseases of the heart, malignant neoplasm (cancer) and cerebrovascular disease (stroke) .The most common chronic conditions_are arthritis, hearing impairment, hypertension and heart disease.

  The majority of health conditions and diseases are the result of the accumulation of ones' lifestyle, genetic factors and environmental conditions.

The major results of the aging process are:

a) a reduced physiologic reserve of many body functions (i.e., heart, lungs, kidney)
b) an impaired homeostasis mechanism by which bodily activities are adjusted (i.e., fluid balance, temperature control and blood pressure control)
c) an impaired immunonologic system, as well as related increased incidence of neoplastic and age-related autoimmune conditions.

- Systemic conditions and oral health

Nutritional Status : affect the periodontal condition
Immunosuppression : higher risk for fungal infections, viral infections, oral ulcerations.

- Diabetes : accelerate periodontal disease, higher risk for fungal infections, periodontal disease impacts glycemic control.
- Dementia: oral hygiene often neglected, hard to localized oral pain
- Arthritis :impaired manual dexterity leads to poor oral hygiene
- Osteoporosis :accelerates tooth loss , increases frequency of denture
- The loss of elders' ability to function to capacity includes a decline in respiratory function and the inability to accommodate to temperature changes.

- Functional Status: functional assessment evaluates one's ability and limitations to complete basic tasks of daily life

- Functional status is defined in terms of Activities of Daily Living (ADLs) are those abilities that are fundamental to independent living,such as bathing,dressing, toileting, transferring from bed or chair, feeding and continence.
- Instrumental Activities of Daily Living (IADLs) are more complex daily activities such as using the telephone, preparing meals and managing money.
- The individual's ability to complete ADLs and IADLs will affect the person's ability to access and maintain their oral health care regimen.

- Oral-Disease Patterns

  This decline in edentulism appears to be the result of

- water fluoridation,
- increased public awareness of preventive approaches
- improved access to services,
- a decrease in early tooth loss
- This decline in tooth loss results in more natural teeth at risk for caries (coronal, recurrent, and root) and periodontal diseases.

As long as teeth are present, individuals remain at risk of dental caries. Unfortunately, many older adults do not place a priority on oral health care, and view seeing a dentist only to relieve pain and discomfort.

As a result of increased deposits of secondary dentin and a reduced sensory ability, many older adults tend to seek care only when their decay is in a late stage.

Barriers to Oral Health for Older

1. Adults Finances
2. Transportation
3. Education & Awareness
4. Systemic Health
5. Social and Family Support Issues (Caregiving)
6. Dietary and Lifestyle Factors
7. Poor Oral Hygiene/Preventive Care Practices
8. Shortage of Dentists
9. Lack of Interpreter Services

Changes of tooth Structure

Enamel: superficial increases in fluoride content with age, Thickness of the enamel decrease over time, due to the many chewing cycles and cleaning with abrasive dentifrices

Dentin :The volume of dentin increases through the apposition of secondary dentin on the walls of the pulpal chamber and because of caries or dental excavation. Aged dentin is more brittle, less soluble, less permeable, and darker than it was earlier in life.

Pulp :The size of the pulp chamber and volume of the pulpal tissue decreases with reparative and secondary dentin. The odontoblastic layer surrounding the pulp changes progressively from a multilayer organization of active columnar cells to a single layer of relatively inactive cuboidal cells.

Cementum: Calcification of the nerve canals increases with age, the cementum volume within the alveolus increases gradually over time, notably in the apical and periapical areas.

Radiographic Appearance :Aging affects the potential diagnosis and subsequent treatment planning by altering the radiographic appearance of teeth. Teeth that appear pulpless usually are not, making the instrumentation during an endodontic procedure a

challenge. Apposition of apical cementum has been shown to alter the association between the apical foramen and the radiographic apex.

Oral Soft tissues: Mucus membrane generally atrophy with age .In mouth the rate at which this occurs depends on diet, habits ,dentures wear and oral hygiene.

- Increase keratinization of cheek and lips
- palate less keratinization
- Thinner oral mucosa is more easily damages and penetrated by some substances in food, which may give rise to etching or burning.

Root Caries :The nature of the root caries appear to be more severe in males and most likely to affect the molar regions.

Risk factors:

1. gingival recession
2. Physical disabilities
3. Existing restorations or appliances
4. Decreased salivary flow
5. Medication
6. Cancer therapy
7. Low socioeconomic status

Other risk factors influencing the higher incidence of root caries mong the older patient include:

1. abrasion at the cementoenamel junction,
2. fixed bridgework,
3. removable partial dentures,
4. long-term institutionalization,
5. soft diets consisting of refined sugars and sticky, fermentable carbohydrates.

Root caries prevention and therapy include:

1. application of topical fluoride,
2. dietary counseling,
3. plaque control, and prevention of gingival recession.

Restorative dental treatment

Shallow root caries

1. Smoothing the compromised root surface,
2. improving access to oral hygiene,
3. and applying a topical fluoride

Deeper compromised surfaces : Need to be cleaned out and restored with a restorable dental material. There are four types of materials currently used to restore carious lesions on the root surfaces:

1. amalgam
2. composite resins
3. auto-cured and dual-cured glass ionomer cements

Periodontal disease : The rate of periodontal disease progression partly related to the mass and composition of the oral microbiota and the host's ability to respond to this microbial population, research has focused on new diagnostic and treatment modalities, such as DNA diagnostic probes, enzymatic assays and bacterial analyses, the use of lasers, new pharmaceutical preparations . Earlier identification of periodontal disease and risk factors will be possible, as well as early treatment to help reduce disease progression and its subsequent loss of teeth.

Local Anesthesia :Most restorative procedures can be done with no discomfort in the absence of local anesthetic or with minimal infiltration of anesthetic, with the patient's consent.

Fluoride treatment:

0.02% sodium fluoride daily mouth rinse

0.4% stannous fluoride gel

Oral Cancer: person 65yrs of age and older are 7 times more likely to be diagnosed with oral cancer than under 65yrs of age. Fellow up every six months to:

1- receive a comprehensive intra and extra oral examination

2- receive a thorough questioning regarding changes in oral conditions and habits.

3- x- rays should be taken periodically.

4- When redness, irritation, bleeding, soreness, sensitivity to temperature changes and/or chewing is present to such a degree that it interferes with daily routine or persists for more than 2 weeks, the problem should be investigated . With early diagnosis ,the prognosis is much improved.