



The Prevalence of Dental Caries in Adults with Cystic Fibrosis

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Background

The population of adults with Cystic Fibrosis will rise in Europe by 28% over a 13 years period from 2017 – 2030, assuming that mortality rates do not change(1). The prevalence of oral disease increases with age in a general population(2). Historical studies have shown that children with cystic fibrosis have lower levels of dental caries than children without cystic fibrosis(3),(4). There is currently no data on caries prevalence in adults with cystic fibrosis in Ireland. Risk-based prevention is a central concept for public health. Therefore, a study was conducted to measure the prevalence of caries in adults with cystic fibrosis.

The objective of this cross-sectional study was to measure the prevalence of dental caries in a cohort of adults with cystic fibrosis and to identify if this cohort are at a greater risk of developing dental caries compared to a control group.

Methods

Ethical Approval

- Approved by Clinical Ethics Committee of the Cork Teaching Hospitals (ECM 4 (y) 22/10/2019 & ECM 3 (uuu) 05/05/2020)
- Conducted in accordance with the Declaration of Helsinki – Ethical Principles for Medical Research involving Human Subjects and UCC Ethics of Research

Recruitment

- Study group participants were recruited voluntarily when attending the adult cystic fibrosis unit in Cork University Hospital
- Control group participants were recruited via adverts UCC, shopping centres, social media channels
- Inclusion criteria study group; Aged 18+ with a diagnosis of cystic fibrosis.
- Inclusion criteria control group; Aged 18+ with no systemic conditions, no long-term medications, and non-smokers

Examination n= 100

- Consent was obtained, and participants were given a detailed patient information leaflet
- Patient questionnaire regarding oral health, oral hygiene habits, dietary habits, and cystic fibrosis diagnosis
- A clinical dental examination was conducted by two calibrated dentists (ICC .94) using the DMFS (Decayed, Missing, Filled, Tooth Surface) index as recommended by the WHO. Data collection was conducted within the CF unit using a standardized setup of a Daray lamp, mirror, and probe.

Statistical Analysis

- Data from questionnaire and dental examination entered into SPSS (Version 28, IBM, Chicago, USA)

According to the WHO (1997, assessment) criteria, a carious lesion was defined as caries present when a lesion in a pit or fissure or on a smooth tooth surface has an unmistakable cavity, undermined enamel, or a detectably softened floor or wall(5).

Results

Ninety-two adults with CF were recruited voluntarily from the adult CF unit at Cork University Hospital. The age range was from 18 to 69 years, with a median age of 30.3 years. Of these participants, 54 were male, and 38 were female. The mean (SD) value of the total DMFT index was 1.22 ± 1.05 in all participants

The mean (SD) values of Decayed teeth (DT), Missing teeth (MT), and Filled Tooth Surface (FS) indices of the participants

DMFS Index	SD Values
Decayed Teeth (DT)	.61±1.42
Missing Teeth (MT)	.93±1.27
Filled Teeth (FT)	2.11±2.00

The mean (SD) value of the total DMFS index according to an age range

Age Range (Years)	Frequency (n=92)	DMFS Index (SD Values)
18-24	20	.77±.972
25-34	44	1.15±.875
35-44	21	1.61±.931
45-54	5	1.23±1.12
55-64	1	4.83±0
64+	1	1.29±1.72

Conclusions

- Caries prevalence among adults with CF is generally low, which may be attributed to greater health awareness.
- Long-term medication use or microbiomes specific to this population may also play a role in lower caries prevalence.
- Our findings differ from other studies that reported that "caries experience (DMFT) in patients with CF was higher than in controls(7).

Clinical Implications

- Dental caries can lead to pain, functional impairment, infection, and tooth loss. All of which can negatively impact a PWCF's nutritional intake, airway clearance, and quality of life.
- Furthermore, dental caries can lead to aesthetic concerns, low self-esteem, and sleep disturbances.
- The CF population would benefit from targeted oral health prevention strategies to maintain optimal oral health throughout life.

References

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