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Effect of aging on MMO in Kashmiri population

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Abstract

Background/purpose: Maximum mouth opening (MMO) is a significant and very important diagnostic criterion for many clinical conditions. However, the number of relevant studies is limited, and the relationship between age and MMO has not yet been established. The purpose of this study was to measure and analyze the MMO of ethnic Kashmiri adults and to examine the possible relationship between age and MMO.

Materials and methods: A total of 100 adult subjects aged 20–80 years (50 males, 50 females) were randomly selected. Subjects were divided into two age groups:

Group I: 20–39 years (young),

Group II: 40–59 years (middle).

Independent sample t test and one-way analysis of variance (ANOVA) were used to examine differences in MMO relative to sex and age groups. The average MMO of the male subjects was found to be more than females in both age groups. The mean maximum mouth opening in males and females in group I was 54.37mm and 47.6.9mm and in group II was 50.17mm and 45.25mm respectively as shown in table 1. MMO significantly decreased with increasing age, regardless of sex.

Conclusion: Within the limits of this study, we concluded that both sex and age have significant influences on the MMO value of Kashmiri population, and age is a significant predictor of MMO measurements.

Keywords: Mouth opening, Kashmiri population

Introduction

Dental clinicians use maximal mouth opening (MMO) predictor of many clinical conditions. Many clinical conditions such as temporomandibular disorders (TMD), odontogenic infection, oral malignancies, oral submucous fibrosis (OSF) and trauma are related to limitation of mouth opening. Limited mouth opening can cause varying degrees of difficulty in managing and treating patients. MMO is used as a clinical diagnostic tool especially for those with temporomandibular joint problems. MMO measurements effect oral instrument access and design. Despite the clinical significance of MMO, the number of relevant studies is limited, and some would need a substantially larger sample size for valid generalizability. Research has shown that measurements of MMO can significantly vary with age, sex, stature and facial profile.

Aims and objectives

This study was conducted to evaluate the variation of maximum mouth opening with aging in Kashmiri population.

Materials and methods

Sample: In total, 100 adult Kashmiri patients aged 20–80 years (50 males, 50 females) from the Department of Prosthodontics, Government Dental College and Hospital Srinagar were randomly selected.

Inclusion criteria

1. Age: 20-60 years
2. Healthy subjects with bilateral natural tooth stops in anterior and posterior dentition.

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Exclusion criteria

1. Age <20 and >60 years
2. Patients with a history of temporomandibular disorders, head trauma, head or neck tumors, oral submucous fibrosis or congenital abnormalities in the maxillofacial area, or class III malocclusion (anterior cross bite).

Subjects were advised to rest for at least 10 minutes in visiting room prior to measuring Maximum Mouth Opening (MMO). Patients seated in supine position in dental chair were instructed to open their mouth as wide as they could. Then, the linear distance between the ipsilateral incisal edges of maxillary and mandibular incisors (Inter-incisal distance) was measured with Vernier caliper. Inter-incisal distance, IID was successively measured three times for each subject within 2 minutes and highest of the three measurements was recorded. Overbite was measured for each subject and added to the highest interincisal distance to get Maximum Mouth Opening (MMO)

Results

The subjects were divided into three age groups of 20-year intervals for both males and females:

1. Group I: 20–39 years (young),
2. Group II: 40–59 years (middle).

Independent sample t test and one-way analysis of variance (ANOVA) were used to examine differences in MMO relative to sex and age groups. The average MMO of the male subjects was found to be more than females in both age groups. The mean maximum mouth opening in males and females in group I was 54.37mm and 47.6.9mm and in group II was 50.17mm and 45.25mm respectively as shown in table 1. MMO significantly decreased with increasing age, regardless of sex. This decrease was about 1.4 mm males and 0.9 mm in females for every 10 years after entering adulthood. regression equation was: $MMO (mm) = 54.20 - 0.17 \times \text{age}$, for males; and $MMO (mm) = 51.32 - 0.07 \times \text{age}$, for females.

Table 1: Mean value of maximum mouth opening (mm) of male and female subjects in group I and Group II.

Mean value of maximum mouth opening(mm)			
	20-40years	40-60years	p-Value
Male	54.37+/-5.27	50.17+/-4.40	<0.0001
female	47.69+/-6.40	45.25+/-6.66	<0.0001

Discussion

MMO has been described either as the interincisal distance or as the inter-incisal distance plus the overbite. Measurement of the inter-incisal distance plus overbite means measurement of the vertical distance traveled by the mandible. However, as pointed out by Mezitis *et al.* the functional opening of the mouth is more important, because this is the value that actually affects chewing and dental treatment.

The correlation between MMO and stature is controversial. Some studies described a positive Relationship. Westling and Helkimo mentioned that MMO is relatively dependent on the size of the mandible, which is obviously greater in males. Since human males are generally taller and larger than females, it is conceivable that MMO would be larger in males.

Conclusion

In summary, within the limits of this study, we concluded that both sex and age have significant influences on the MMO

value of Kashmiri population and age is a significant predictor of MMO.

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