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Radiographic assessment of third molars development and it's relation to dental and chronological age in an Iranian population

Supervisored By:

Dr. Mohammad Monirifard

By:

Navid Yaraghi

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Radiographic assessment of third molars development and it's relation to dental and chronological age in an Iranian population

Mohamad Monirifard[1], Ava Vali[2], Asana Vali[3], Armita Vali[3], Navid Yaraghi

[1]Department of Orthodontics, Torabinejad Dental Research Center, [3]Dental Students' Research Center, School of Dentistry, Isfahan University of Medical Sciences, [2]Department of Pediatric Dentistry, Khoorasgan University of Dental Sciences, Isfahan, Iran

Address for correspondence:
Navid Yaraghi
School of Dentistry, Isfahan University of Medical Sciences, Isfahan, Iran.
E-mail: navidyaraghi@yahoo.com

ABSTRACT

Background: The aim of the present study was to estimate chronological age based on third molar development and to determine the association between dental age and third molar calcification stages.

Materials and Methods: In this cross-sectional study, 505 digital panoramic radiographs of 223 males (44.2%) and 282 females (55.8%) between the age of 6 and 17 were selected from patients who were treated in Departments of Pediatrics and Orthodontics of Isfahan University of Medical Sciences between the years of 2009 and 20013. Correlation between chronological age and third molar development was analyzed with SPSS 21 using Spearman's Rank correlation coefficient, Chi-square test and multiple regression statistical tests ($P < 0.05$).

Results: All third molars demonstrated a highly significant correlation with dental age ($P < 0.001$). The teeth showing the highest relationship with dental age were mandibular left third molar in males and mandibular right third molar in females ($r_s = 0.072$). When multiple regression was used to predict dental age based on molar calcification stage, the only significant correlation was between maxillary left third molar in males ($P < 0.05$). There was no statistically significant correlation for any of third molars in females. Relationship between chronological age and molars development stage was significant in all age subgroups and in both gender ($P < 0.001$).

Conclusion: Strong correlation was observed between left third molars and dental age in males. Results showed that third molar calcification stage can be used as an age predictor and in general mandibular teeth seems to be more reliable for this purpose in both gender and in all ages.

Key Words: Chronological age, Demirjian system, dental age

CONCLUSION

It was concluded that:

1. There is a significant correlation between the calcification stage of third molars with dental and chronological age.
2. The teeth showing the highest relationship with dental age were mandibular left third molars in males and mandibular right third molars in females.
3. When comparison between different age groups was conducted, mandibular third molars demonstrated a significant correlation with dental age in all groups in both males and females. Maxillary left molars showed a significant correlation in all age groups except for 6-9 years old. Maxillary right molar was not correlated in 15-17 years female and 6-9 years male groups.
4. To predict dental age based on molar classification stage (using multiple regressions), only maxillary left third molars in males showed a significant correlation.

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چکیده:

پیش زمینه: هدف این مطالعه تخمین سن تقویمی بر اساس تکامل دندان مولر سوم و تعیین ارتباط بین سن دندانی و مراحل کلسیفیکاسیون مولر سوم بود.

روش اجرا: در این مطالعه کراس سکشنال، ۵۰۵ رادیوگرافی پانورامیک شامل ۲۲۳ مرد(٪۴۴/۲) و ۲۸۲ زن(٪۵۵/۸) با سن ۱۷-۶ سال استفاده شد. رادیوگرافی ها از بیماران درمان شده در بخش های اطفال و ارتودنسی دانشگاه علوم پزشکی اصفهان بین سال های ۲۰۱۳-۲۰۰۹ انتخاب شد. همبستگی بین سن تقویمی و تکامل مولر سوم توسط نرم افزار SPSS21 با ضریب همبستگی spearman's، تست chi square و تست آماری multiple regression آنالیز شد.

نتایج: همه ی مولر های سوم همبستگی با سنن دندانی (P<0/001) نشان دادند دندان هایی که بیشترین ارتباط را با سن دندانی داشتند، مولر سوم چپ مندیبل در مردان و مولر سوم راست مندیبل در زنان بودند.(rs=۰/۰۷۲)

زمانی که از آزمون multiple regression برای پیش بینی سن دندانی از روی مراحل کلسیفیکاسیون مولر استفاده شد، تنها همبستگی معنی دار، بین مولر سوم چپ ماگزیلا در مردان (P<۰/۰۵) بود. هیچ همبستگی معنی دار آمایر برای هیچ کدام از مولرهای سوم در زنان یافت نشد. ارتباط بین سن تقویمی و مراحل تکامل مولرها در تمام زیر گروه های سنی و در هر دو جنس معنی دار بود.(P<۰/۰۰۱)

نتیجه گیری: همبستگی مشخصی بین مولرهای سوم چپ و سن دندانی در مردان وجود نداشت نتایج نشان داد که مرحله کلسیفیکاسیون مولر سوم می تواند به عنوان یک پیشگو کننده سن استفاده شود و به طور کلی دندان های مندیبل به نظر می رسد برای این هدف در هر دو جنس و در همه ی سنین قابل اعتماد تر باشند.

دانشگاه علوم پزشکی و خدمات بهداشتی درمانی استان اصفهان

دانشکده دندانپزشکی

پایان نامه جهت اخذ درجه دکترای عمومی دندان پزشکی

تحت عنوان

بررسی رادیوگرافی تکامل دندانهای مولر سوم و ارتباط آنها با سن دندانی و تقویمی در شهر اصفهان

به راهنمایی استاد ارجمند:

جناب آقای دکتر محمد منیری فرد

نگارش:

نوید یراقی

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