

DENTAL AGE ESTIMATION BY MACROABRASION OF TEETH AT THE LATE IRON AGE ARCHAEOLOGICAL SAMPLE FROM THE KOPILA SITE ON THE ISLAND OF KORČULA

Marina Marić ¹, Dinko Radić ², Marin Vodanović ³, Jelena Dumančić ³, Davorka Radovčić ⁴, Hrvoje Brkić ³

¹PhD student at the School of Dentistry, University of Zagreb

²Vela Luka Cultural Center, island of Korčula

³Department of Dental Anthropology, School of Dentistry, University of Zagreb

⁴Croatian Museum of Natural History, Zagreb

Introduction: The aim of this study is to analyze the changes caused by abrasive wear on the teeth of archaeological skeletal remains and thus to estimate the dental age at the time of death of the observed individuals.

Materials and methods: The analysis included a part of the collection of samples from the Kopila necropolis (tomb 4), at island Korčula , stored in the Vela Luka Cultural Center . A total of 284 permanent dentition teeth were classified into 32 individuals and by sex. Dental age was determined by the Lovejoy method, and the degree of tooth wear by the Smith and Knight methods.

Results: Under the age of 20 there are two (n = 2) individuals, from 20-24 years there are five (n = 5), from 24-30 years there are three (n = 3), from 30-35 years there are three (n = 3), from 35-40 years there are six (n = 6), and older than 40 there are eleven (n = 11), while for two individuals it was not possible to determine the age. The average total age of individuals is 35.6 years (+/- 3.1 years, SD 11.1). Abrasive changes are present on 92.9% of teeth, and 93.3% have oblique abrasion. According to the degree of wear, grades 2 and 3 are the most common (in 63.1%), so dentin without pulp exposure is exposed. Changes were equally present in the incisors and molars ($p = 0.236$). No significant gender difference was observed ($p > 0.05$ for all teeth and jaw parts). There were also no differences in the degree of abrasion of the maxillary and mandible teeth ($t = -0.266$, $p = 0.791$), right and left maxillary teeth ($t = -0.392$, $p = 0.702$), and right and left mandible teeth ($t = -0.889$, $p = 0.390$). There is a statistically significant association between age and the average degree of tooth abrasion in the mandible, right and left mandibles, and right and left maxillae. The best level of association was found for the degree of tooth abrasion in the mandible ($r = 0.935$, $p < 0.001$).

Conclusion: The Illyrian population belonging to the analyzed archaeological sample was buried in the Kopila necropolis, and dental analysis resulted in dental age, which concludes that the analyzed population had a life expectancy normal for the Late Iron Age, which was 30-40 years. Abrasive changes suggest a diet rich in hard, abrasive, poorly cariogenic foods with probable particles of inorganic origin.

Acknowledgments: The research was funded by the Croatian Science Foundation through the project: Tooth Analysis in Forensic and Archaeological Research, IP-2020-02-9423.

Key words: dental wear, dental remains, late iron age

ODREĐIVANJE DENTALNE DOBI MAKROABRAZIJOM ZUBA NA ARHEOLOŠKOM UZORKU IZ MLADEGA ŽELJEZNOG DOBA S LOKALITETA KOPILA NA OTOKU KORČULI

Marina Marić ¹, Dinko Radić ², Marin Vodanović ³, Jelena Dumančić ³, Davorka Radovčić ⁴, Hrvoje Brkić ³

¹Studentica doktorskog studija Stomatološkog fakulteta Sveučilišta u Zagrebu

²Centar za kulturu Vela Luka, otok Korčula

³Zavod za dentalnu antropologiju Stomatološkog fakulteta Sveučilišta u Zagrebu

⁴Hrvatski prirodoslovni muzej, Zagreb

Uvod: Svrha rada je analizirati promjene nastale abrazivnim trošenjem na zubima arheoloških skeletnih ostataka te time procijeniti dentalnu dob u vrijeme smrti promatranih jedinki.

Materijali i metode: Analizom je obuhvaćen dio kolekcije uzoraka iz nekropole Kopila (grobnica 4), na otoku Korčuli, pohranjenih u Centru za kulturu Vela Luka. Ukupno 284 zuba trajne denticije razvrstani su u 32 jedinke i prema spolu. Dentalna dob je određena metodom po Lovejoyu, a stupanj istrošenosti zuba po Smith i Knight metodi.

Rezultati: U dobi do 20 godina su dvije (n=2) jedinke, od 20-24 godine je pet (n=5), od 24-30 godina je tri (n=3), od 30-35 godina je tri (n=3), od 35-40 godina je šest (n=6), te starijih od 40 je jedanaest (n=11), dok za dvije jedinke nije bilo moguće odrediti dob. Prosječna ukupna starost jedinki je 35,6 godina (+/- 3,1 godina, SD 11,1). Abrazivne promjene prisutne su na 92,9% zuba, a kod 93,3% se radi o kosoj abraziji. Po stupnju trošenja najviše su zastupljeni stupnjevi 2 i 3 (kod 63,1%), dakle izložen je dentin bez izloženosti pulpe. Promjene su podjednako zastupljene na sjekuticima i kutnjacima ($p = 0,236$). Ni je uočena značajna razlika vezano uz spol ($p > 0,05$ za sve zube i dijelove čeljusti). Također nisu utvrđene razlike u stupnju abrazije zuba maksile i mandibule ($t = -0,266$, $p = 0,791$), zuba maksile desno i lijevo ($t = -0,392$, $p = 0,702$), te mandibule desno i lijevo ($t = -0,889$, $p = 0,390$). Postoji statistički značajna povezanost dobi i prosječnog stupnja abrazije zuba u mandibuli, mandibuli desno i lijevo, te maksili desno i lijevo. Najbolja razina povezanosti utvrđena je za stupanj abrazije zuba u mandibuli ($r = 0,935$, $p < 0,001$).

Zaključak: Populacija Ilira koja pripada analiziranom arheološkom uzorku sahranjena je u nekropoli Kopila, a analizom zuba postignuta je dentalna dob koja zaključuje da je analizirana populacija imala životni vijek uobičajen za razdoblje mladeg željeznog doba, a koji je iznosio 30-40 godina. Abrazivne promjene upućuju na prehranu bogatu tvrdom, abrazivnom, slabo kariogenom hranom s vjerovatno česticama anorganskog podrijetla.

Zahvala: Istraživanje je financirala Hrvatska zaklada za znanost kroz projekt: Analiza zuba u forenzičnim i arheološkim istraživanjima, IP-2020-02-9423.

Ključne riječi : Zubno trošenje, dentalni ostaci, mlađe željezno doba