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ANTHROPOLOGICAL ANALYSIS OF THE HUMAN SKELETAL REMAINS FROM THE LATE ANTIQUE NECROPOLIS (4TH CENTURY AD) OF TEKIĆ – TREŠTANOVAČKA GRADINA NEAR POŽEGA

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The paper presents the results of the bioarchaeological analysis of the late antique (4th century AD) skeletal sample from Tekić – Treštanovačka gradina near Požega. Skeletal and dental remains of 28 individuals were examined for the possible presence of caries, alveolar bone disease, *cribra orbitalia*, dental enamel hypoplasia, degenerative osteoarthritis of the vertebrae and major joints, Schmorl's nodes on vertebrae, periostitis, and bone trauma. The analysed sample is characterised by relatively high frequency of caries and alveolar bone disease, most probably as a result of poor oral health and diet mostly based on cereals. High frequencies of *cribra orbitalia*, dental enamel hypoplasia and periostitis suggest relatively frequent episodes of physiological stress such as starvation and infectious diseases, while the distribution and prevalence of bone fractures indicate a relatively low level of interpersonal violence in the studied community.

Keywords: bioarchaeology, late antique period, continental Croatia, Tekić (*Ključne riječi: bioarheologija, kasna antika, kontinentalna Hrvatska, Tekić*)

INTRODUCTION

According to the historic documents the 4th century AD in the region of continental Croatia (present-day Slavonia) was a period of turmoil and frequent crisis. Written sources report of numerous barbarian intrusions in the region of Slavonia (Roman provinces of *Pannonia Savia* and *Pannonia Secunda*), as well as of large battles related to civil wars during this period. The Byzantine historian Zosimus gives a detailed description of a battle that took place in 314 AD near *Cibalae* between Constantine I and Licinius with over 50,000 soldiers fighting on both sides; the battle ended in Licinius' defeat and in the loss of 20,000 soldiers who fought on his side (Lieu and Montserrat 1996; Odahl 2004). Second major battle occurred on the 28th September 351 AD near *Mursa* where the emperor Constantius defeated the usurper Magnius Magnentius - it was described as one of the bloodiest battles of the late antiquity with approximately 54,000 dead soldiers (Pinterović 1978). Numerous barbarian incursions reached their culmination after the Roman defeat at Adrianople in 378 AD when the Ostrogothic-Alanic-Hunnish forces led by Alatheus and Saphrax broke into the present-day Slavonia, and on that occasion many cities such as Mursa and Cibalae were destroyed (Gračanin 2011). The situation calmed down after the emperor Gratian in 380 offered a separate peace to Ostrogoths, Huns and Alans who in a role of Roman *foederati* settled in the northern Pannonian provinces (*Pannonia Valeria*, *Panonnia Prima*, and border territories of *Pannonia Secunda* north of the Drava river) (Gračanin 2011). Peace in Slavonia did not last long because war broke out between the two Roman emperors, Theodosius and Magnus Maximus, culminating in battles of *Siscia* and *Poetovio* in 388 where the crucial role was played by Hunnish and Alanic horsemen. Armed conflicts on the territory of present-day Slavonia continued in 394 when a new civil war broke out between Theodosius and Eugenius in whose defeat the important role was again played by Pannonian *foederati* (Gračanin 2011).

Numerous testimonies strongly suggest that the 4th century AD in Slavonia was an extremely turbulent period. This situation had to negatively reflect onto the quality of life of the late antique inhabitants of this region. For this purpose, several bioarchaeological studies (e. g. Novak and Šlaus 2010; Šlaus *et al*. 2004a) have been carried out in an attempt to verify the accuracy of hypothesis proposed by historic sources regarding the poor living conditions in the Croatian part of the province of Pannonia during the late antique period. In addition to these studies, several bioarchaeological analyses of the antique period populations from continental Croatia were also published (Bedić *et al*. 2009; Hincak *et al*. 2007; Novak *et al*. 2009a; Šlaus 1998, 2001, 2002; Šlaus *et al*. 2004a, 2004b), with focus mostly on sites located on the eastern border of Slavonia, i. e. near the Danube *limes*.

Although some anthropological analyses of the skeletal material from Tekić are already published (Kallay 1974, 1977; Pilarić 1974, 1979) these studies yielded very

limited amount of data. This study will, for the first time, using modern methods, present the data on mortality, dental pathologies, infectious diseases, subadult stress, indicators of heavy physical work and skeletal injuries of a late antique population inhabiting the heart of Slavonia. The bioarchaeological characteristics of the Tekić sample will be compared with other contemporaneous Croatian skeletal samples in order to distinguish possible differences in health status of these communities given the different geographical locations and ecological systems. This analysis, together with other studies of the antique period skeletal samples from present-day Croatia will enable the creation of a broader bioarchaeological database for the whole region that will provide a clearer insight into the quality of life and the living conditions of the Roman populations.

Many aspects of the everyday life of the inhabitants of Treštanovačka gradina are still unknown, and we hope that the comprehensive bioarchaeological analyses will shed some light on the health status and quality of life of this late antique community.

MATERIAL AND METHODS

The village of Tekić is located approximately 12 km north-eastern of Požega in Slavonia (**Fig. 1**). It is assumed that the Treštanovačka gradina site situated north of Tekić represents the position of the Roman settlement *Incerum* (for more details see Gračanin 2011). Since the end of the 19th century numerous finds of Roman bricks, pottery, glass, fragments of stone sculptures and coins were found at the Treštanovač-

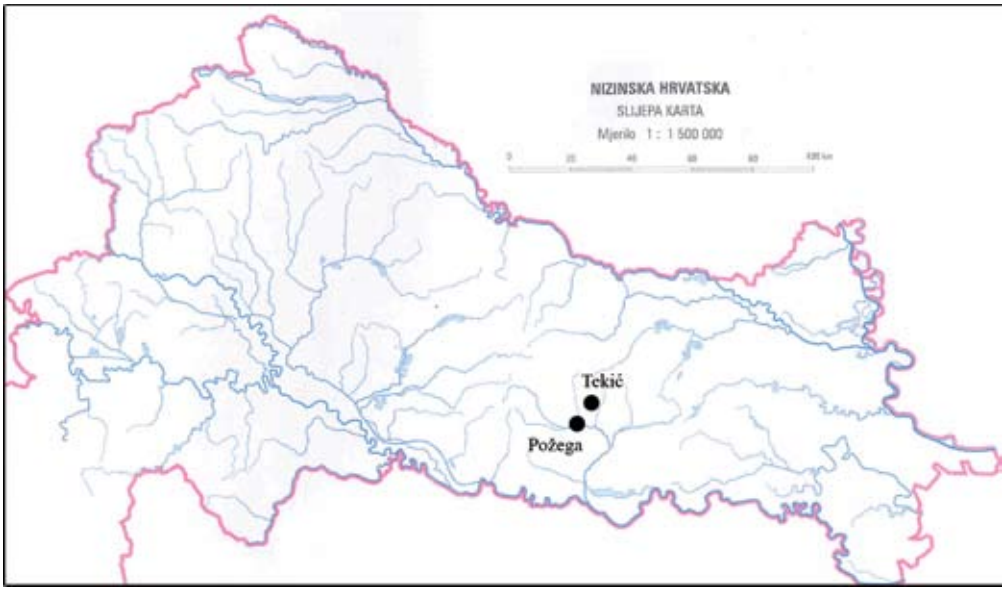

Fig. 1. Map of continental Croatia with geographical location of Tekić.

Fig. 2. Grave 112 containing burial of an adult male *in situ* (photo is part of the excavation documentation, courtesy of the Town Museum in Požega).

ka gradina which prompted archaeologists to begin with excavations at the site. The systematic archaeological excavations were led by the archaeologist Dubravka Sokač-Štimac from the Town Museum in Požega (former Museum of the Požega Valley) between 1972 and 2007.

The late antique necropolis (second half of the 4th century AD) contained 124 graves oriented W-E with heads on the west. Most of the graves contained one skeleton, but some also contained double burials. Burials can be divided into two groups: burials in earthen graves (without grave architecture or in wooden coffins) (**Fig. 2**) and burials in stone tombs (covered with tile roofs - *tegulae*, in a form of stone coffin, etc.). Numerous grave accessories consisted mostly of pottery, glass vessels (bottles, glasses), jewellery made of animal bone, iron, bronze, silver and gold (rings, earring, bracelets), pearls made of faience, glass, jet and amber, bronze belt buckles and *fibulae*, iron knives, and coins (Sokač-Štimac 1977, 2005, 2006; Sokač-Štimac and Bulat 1974).

The skeletal material studied in this paper originates from the excavations conducted in 1972, 1975, 2004, and 2005. Dental and skeletal remains of 28 individuals from 27 graves were available for the analysis. The preservation of bones from this site varies between poor and excellent. It has to be stressed out that the analysed ske-

letal sample from Tekić is relatively small and as such is subject to random statistical variations; all conclusions derived from this study need to be taken with a certain amount of caution.

The anthropological analysis was carried out in the laboratory of the Department of Archaeology of the Croatian Academy of Sciences and Arts in Zagreb. Sex and the age at death of the recovered individuals were determined using methods described in Buikstra and Ubelaker (1994). No attempt was made to determine the sex of subadults (individuals under 15 years of age).

All skeletons were analysed for the possible presence of the following pathologic changes: alveolar bone disease, dental caries, dental enamel hypoplasia, *cribra orbitalia*, periostitis, Schmorl's nodes, vertebral osteoarthritis, osteoarthritis of major joints, and bone fractures. All pathological changes were recorded according to Ortner (2003), and all anthropometrical measurements were performed according to Martin and Saller (1957). The average height of adults from Tekić was calculated using the so-called Trotter-Gleser technique (Trotter 1970).

For the purposes of this analysis, alveolar bone disease was defined as the presence of periodontal or periapical abscess, or antemortem tooth loss. The presence of caries was diagnosed macroscopically, under strong illumination, with the help of a dental probe. The presence of dental enamel hypoplasia was analysed on the permanent maxillary central incisors and on the permanent maxillary and mandibular canines. All skulls with preserved orbital roofs were macroscopically examined under powerful illumination for the possible presence of *cribra orbitalia*. Only cases of non-specific periostitis were included in the analysis; it was diagnosed when two or more skeletal elements exhibited active or healed periostitis, and criteria for inclusion in the sample were the presence of at least 50% of all cranial bones and long bones. Osteoarthritic changes on major joints (shoulders, elbows, hips and knees) were recorded as present if no less than one joint element was preserved or if over 50% of the joint surface was preserved in two or three elements. The presence of bone trauma was established by macroscopic analysis including verification of the bilateral asymmetry of bones, angular deformities, presence of bone calluses and depressions on the skull; only long bones preserved to an extent of at least two thirds of their surface and with all major articular surfaces preserved were analysed (clavicles, humerii, radii, ulnae, femora, tibiae and fibulae).

The differences in the average age at death for males and females were evaluated using the non-parametric Kruskal-Wallis test. The differences in the frequencies of the analysed pathological changes between subadults and adults and between males and females, as well as between skeletal samples were evaluated with the chi-square test using Yates correction when appropriate. A statistical computer program SPSS 14.0 for Windows was used for all statistical calculations and tests.

RESULTS

Demography and stature

The age and sex distribution of the Tekić skeletal sample by grave is presented in **Table 1**. Out of the 28 individuals six are subadults, thirteen are males, six are females, one is probably male, and two adult individuals are of indeterminable sex. The sample is characterized by a complete absence of subadults from the youngest (0-1 year) age category. The average age at death for the adults is 38.4 years - females lived 1.7 years longer than males (39.5 vs. 37.8 years), but the difference is not statistically significant.

Table 1. Sex and age of the analysed individuals by grave.

Grave	Sex	Age (years)
3	indeterminable	>45
4	subadult	1-2
7	indeterminable	30-45
8	subadult	12-15
10	subadult	7-8
15	male	30-40
39	female	40-50
40	male	40-50
43	male	40-45
44	subadult	13-15
45A	female	35-40
45B	male	30-40
48	male	30-35
49	female	40-50
51	subadult	13-15
52	male	30-35
103	probably male	35-45
104	female	50-55
105	female	20-25
108	male	30-40
110	male	25-30
111	male	30-35
112	male	35-40
113	male	40-45
114	male	40-45
115	subadult	7-8
116	female	30-35
120	male	45-50

Stature of the individuals from Tekić was estimated on the basis of the length of the femur. The average height for females is 157.9 ± 3.72 cm, and for males is 164.9 ± 3.27.

Table 2. Frequency of alveolar bone disease and carious lesions in the Tekić sample.

	Subadults		Females		Males	
	n/N	%	n/N	%	n/N	%
Alveolar bone disease	0/55	0.0	9/113	8.0	36/238	15.1
Carious lesions	1/40	2.5	15/102	14.7	15/197	7.6

n = number of tooth sockets with abscess or antemortem tooth loss; number of teeth with carious lesions; N = number of examined tooth sockets/teeth

Oral pathologies

The frequencies of alveolar bone disease and caries are shown in **Table 2**. The overall frequency of alveolar bone disease in Tekić is 11.1% (45/406); this pathology was not registered in subadults while the frequency of alveolar bone disease in males is almost as twice as high as in females (15.1% vs. 8.0%), but the difference is not statistically significant. Caries is present in 9.1% (31/339) of the analysed teeth. In subadults carious lesions were registered in 2.5% (1/40) of the teeth, and females (**Fig. 3**) display much higher frequency of caries compared to males (14.7% vs. 7.6%), but the difference is not statistically significant.

Fig. 3. First left mandibular molar exhibiting large carious lesion. Grave 116, adult female (photo by V. Vyroubal, 2012).

Fig. 4. Dental enamel hypoplasia. Grave 43, adult male (photo by V. Vyroubal, 2012).

Subadult stress and non-specific infectious diseases

The total frequency of dental enamel hypoplasia (DEH) in the analysed sample by tooth is 59.4% (19/32; **Table 3**). DEH is most often recorded on the mandibular canines, followed by maxillary canines and maxillary central incisors (**Fig. 4**).

Cribra orbitalia (*CO*), pathological change usually attributed to the iron deficiency anaemia, in the Tekić sample was registered in 35.7% (5/14) of the analysed frontal bones, with one case of active *CO* at the time of death (**Fig. 5**).

In the analysed sample periostitis was observed in 63.2% (12/19; two subadults and ten adults) of the well preserved skeletons. Nine cases of this pathology represent mild, healed form, and three cases (two subadults and one male) display active form of periostitis. All cases of periostitis were localised in the area of the lower extremities, primarily on the tibiae and fibulae.

Fig. 5. Active *cribra orbitalia* in the right orbit. Grave 4, subadult (photo by V. Vyroubal, 2012)**.**

Table 3. Frequency of dental enamel hypoplasia in the Tekić sample.

Tooth	N	n	%
Maxillary I1	9	4	44.4
Maxillary C	10	5	50.0
Mandibular C	13	10	76.9

N = number of examined teeth; n = number of teeth with DEH; I = incisor; C = canine

Schmorl's nodes and osteoarthritis

The total frequency of Schmorl's nodes is 36.4% (55/151; **Table 4**), with significantly higher frequency in males (**Fig. 6**) compared to females (44.3% vs. 3.4%) (χ^2=15.138, P<0.001).

Table 4. Frequency of Schmorl's nodes in the Tekić sample.

	Thoracic		Lumbar		Total	
	n/N	%	n/N	%	n/N	%
Females	1/16	6.3	0/13	0.0	1/29	3.4
Males	31/81	38.3	23/41	56.1	54/122	44.3

n = number of vertebrae with Schmorl's nodes; N = number of examined vertebrae

The frequency of vertebral osteoarthritis (OA) in Tekić is 31.3% (65/208; **Table 5**). In both sexes the prevalence of vertebral OA is similar - in males 32.1%, and in females 28.6%. In both males and females vertebral OA is most frequent in the lumbar vertebrae.

The total frequency of OA of major joints in the analysed sample is 29.6% (16/54), with a slightly higher frequency in females (33.3%) compared to males (27.5%), but without statistical significance. In both sexes osteoarthritis most often appears in hips and knees (**Table 6**; **Fig.** 7).

Table 5. Frequency of vertebral osteoarthritis in the Tekić sample.

	Cervical		Thoracic		Lumbar		Total	
	n/N	%	n/N	%	n/N	%	n/N	%
Females	6/20	30.0	2/16	12.5	6/13	46.2	14/49	28.6
Males	10/37	27.0	27/81	33.3	14/41	34.1	51/159	32.1

n = number of vertebrae with osteoarthritis; N = number of examined vertebrae

Fig. 6. Schmorl's node on the T10 vertebra. Grave 43, adult male (photo by V. Vyroubal, 2012).

Bone fractures

The total long bone trauma frequency in Tekić is 1.5% (2/134; **Table 7**) - long bone fractures were recorded on the radius (1/17 or 5.9%) and fibula (1/22 or 4.5%). Cranial injuries were also registered - two out of 13 (15.4%) well preserved adult skulls (both males) exhibit antemortem trauma. Both cranial injuries are well healed, shallow depression fractures situated on the frontal bones. Besides long bone and cranial trauma, a compression fracture of the L3 vertebra of an adult male buried in grave 113 was also recorded (**Fig. 8**).

Comparison with other antique series from Croatia

Results of this study were compared with the bioarchaeological data (average life span, caries, alveolar bone disease, *CO*, DEH, periostitis, Schmorl's nodes, vertebral OA, OA of the major joints, long bone fractures) obtained from three Croatian antique

Table 6. Frequency of osteoarthritis of major joints in the Tekić sample.

	Shoulder		Elbow		Hip		Knee	
	n/N	%	n/N	%	n/N	%	n/N	%
Females	1/6	16.7	0/1	0.0	2/4	50.0	2/4	50.0
Males	2/10	20.0	1/8	12.5	4/10	40.0	4/11	36.4
Total	3/16	18.8	1/9	11.1	6/14	42.9	6/15	40.0

n = number of joints with osteoarthritis; N = number of examined joints

Fig. 7. Severe degenerative osteoarthritis on the right knee. Grave 114, adult male (photo by V. Vyroubal, 2012).

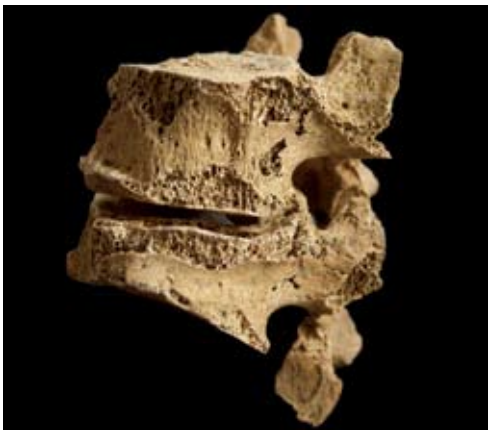

Fig. 8. Compression fracture of the L3 in comparison with L2 vertebra. Grave 113, adult male (photo by V. Vyroubal, 2012).

period sites: Štrbinci (4th-5th c. AD; Novak *et al.* 2009a), Zadar-Relja (1st-4th c. AD; Novak 2008), and Zmajevac (4th c. AD; Šlaus *et al*. 2004a) (**Table 8**).

The Tekić sample displays significantly higher frequencies of alveolar bone disease compared to Štrbinci and Zadar (Tekić vs. Štrbinci χ^2=10.416, P=0.001; Tekić vs Zadar χ^2=12.885, P<0.001), higher frequencies of caries compared to Zadar (χ^2=15.877, P<0.001), higher frequencies of Schmorl's nodes compared to Štrbinci, Zadar and Zmajevac (χ^2=31.711, P<0.001; χ^2=64.526, P<0.001; χ^2=19.752, P<0.001, respectively), as well as significantly higher frequencies of vertebral OA compared to all three antique series (Štrbinci χ^2=36.917, P<0.001; Zadar χ^2=37.959, P<0.001; Zmajevac χ^2=33.27, P<0.001).

Table 7. Frequency of long bone trauma in the Tekić sample.

	N	n	%
Clavicle	16	0	0.0
Humerus	16	0	0.0
Radius	17	1	5.9
Ulna	17	0	0,0
Femur	23	0	0.0
Tibia	23	0	0.0
Fibula	22	1	4.5
Total	134	2	1.5

n = number of long bones with trauma; N = number of examined long bones

Table 8. Comparison with other antique skeletal samples from Croatia.

	Tekić	Štrbinci	Zmajevac	Zadar-Relja
Average life span	38.4	39.1	39.5	37.8
Caries	9.0*	6.9	9.4	4.2
Alveolar bone disease	11.1*	6.5	10.8	6.3
CO	35.7	24.3	29.8	20.2
DEH	59.4	56.9	48.1	61.1
Periostitis	63.2	42.7	X	47.1
Schmorl's nodes	36.4*	16.4	19.2	12.2
Vertebral OA	31.3*	14.1	14.2	14.8
Joint OA	29.6	33.5	24.7	25.2
Long bone fractures	1.5	0.9	X	1.9

*statistically significant differences

DISCUSSION

Although the analyses of osteological material from Tekić were previously conducted during the 1970's (Pilarić 1974, 1979) the data obtained by these studies were in accordance with the methodology of the time, which focused mainly on the morphological and phenotypic characteristics. The repeated anthropological analysis of that material, together with the analysis of the new skeletal material excavated in 2004 and 2005 revealed new important data concerning the living conditions and the way of life of the inhabitants who settled on the territory of the Požega Valley during the late antique period.

Main characteristic of the Tekić skeletal sample is a clear under-representation of subadults from the youngest age group. A review of the relevant literature suggests that this is a widespread phenomenon, regarding of the chronological period and geographic position (e. g. Acsádi and Nemeskéri 1970; Alesan *et al.* 1999; Guy *et al.* 1997; Šlaus 2000, 2006). Acsádi and Nemeskéri (1970) argued that the under-representation of infants in Hungarian medieval skeletal samples is a result of poor recovery of perinatal infant bones rather than taphonomic factors, while Guy *et al*. (1997) suggested that this could be a result of a mixture of factors, including the type of burial and associated burial practices, and archaeological recovery strategies. Regarding the under-representation of infants in Croatian skeletal samples Šlaus (2002, 2006) suggested this is most probably due to different funeral customs and shallower graves of very small children, chemical composition of the soil and frequent reuse of burial sites.

Total frequencies of alveolar bone disease and caries in Tekić are relatively high and are much more similar to the frequencies observed in Croatian medieval skeletal samples than in the antique period series. Lower frequencies of caries are usually recorded in populations whose diet was generally based on proteins (meat), while higher frequencies are noted among populations dependent on agriculture (e. g. Littleton and Frohlich 1993; O'Sullivan *et al.* 1993). Historical sources testify that the inhabitants of Roman Pannonia mostly consumed cereals such as barley and millet (Novak *et al.* 2009a), the hypothesis additionally strengthened by numerous cereal and legume remains (barley, millet, wheat, lentil, etc.) found in two Roman graves from Ilok and Ščitarjevo (Šoštarić *et al.* 2006). Given the difficult situation in Pannonia during the 4th century it is likely that the numerous crises led to the decline of the quality of food which is reflected in the low level of oral health of the inhabitants of Tekić. A relatively high frequency of alveolar bone disease in Tekić could also be the result of an inadequate oral hygiene, since insufficient oral hygiene that removes dental plaque is the basis of future dental loss (Hillson 2000), i. e. gingival inflammation, which is caused by bacterial plaque, leads to bone resorption and results in tooth loss.

Frequency of dental enamel hypoplasia in Tekić is similar to the frequencies observed in other antique period skeletal samples from the territory of the Roman Empire (e. g. Facchini *et al.* 2004; Manzi *et al.* 1999) - such frequencies of DEH are characteristic for sedentary populations with agriculture based diets (Lanphear 1990). High frequency of DEH in Tekić suggests that more than half of the analysed individuals survived strong metabolic stress during the early childhood since Goodman (1988), Hodges (1986), and Lanphear (1990) suggested that in the sedentary populations metabolic stress is strongest during the transition from the diet based on the sterile breast milk to the diet rich with microorganisms.

Cribra orbitalia is generally related to the inadequate nutrition, endemic parasitism, unhygienic living conditions, and chronic gastrointestinal diseases which are main causes of iron deficiency anaemia in children (Larsen 1997; Mittler and van Gerven 1994; Stuart-Macadam 1992; for different opinions see Walker *et al.* 2009). High frequencies of *CO* like the one registered in Tekić are usually observed in sedentary populations characterised by inadequate sanitary conditions and low levels of hygiene (Hengen 1971; Stuart-Macadam 1992), and the widespread occurrence of *CO* in Tekić could suggest a worsening of the living conditions in *Pannonia Savia* during the 4th century AD.

In accordance with high frequencies of DEH and *CO* is the high frequency of periostitis in Tekić. Studies of archaeological populations from different time periods (e. g. Keusch and Farthing 1986; Mensforth *et al.* 1978; Novak *et al.* 2009b; Scrimshaw *et al.* 1968) confirmed the synergistic relationship between the occurrence of infectious diseases and poor nutrition, i. e. acutely or chronically undernourished individuals

are less resistant to infectious diseases compared to individuals with a normal diet. So, based on the available data it could be hypothesised that the inhabitants of Tekić suffered from relatively frequent episodes of hunger, infectious diseases and other metabolic stresses.

Schmorl's nodes on the vertebrae are the result of strong mechanical burdens of the spine. Males in Tekić exhibit significantly higher frequency of Schmorl's nodes compared to females, a fact already noted in numerous Croatian archaeological populations (e. g. Novak *et al*. 2009a; Šlaus 2002, 2006; Šlaus *et al.* 2004a) and particularly in a comprehensive study of vertebral pathologies in two early modern period populations (Novak and Šlaus 2011). These data strongly suggest a sex-based division of labour where males performed more difficult physical tasks, while significantly higher frequency of Schmorl's nodes in Tekić compared to other Croatian antique series suggests that the inhabitants of Tekić had to invest larger amounts of physical effort in order to ensure basic living conditions compared to their contemporaries.

The main factors influencing the presence and severity of degenerative osteoarthritis in the archaeological and modern populations are primarily age, followed by repetitive mechanical loading and movement, and genetic factors (Weiss and Jurmain, 2007). Since the study conducted by Novak and Šlaus (2011) indicates that the degenerative osteoarthritis is correlated with increased age similar frequencies of osteoartritis of the vertebrae and major joints between sexes in Tekić could be a result of similar average life span of both males and females, but some other factors, unknown at the moment, cannot be ruled out.

A relatively low prevalence of long bone fractures in Tekić suggests a relatively low level of interpersonal violence in this community during the 4th century, a fact that does not support the claims of historical sources of the 4th century in Pannonia as an extremely violent period. Long bone fractures recorded in Tekić are the fractures of radius and fibula and exactly these types of trauma are most often related to accidents (e. g. Djurić *et al.* 2006; Judd 2004; Russell *et al*. 2001). The occurrence of the vertebral compression fracture in Tekić could also be accident related because vertebral crush fractures have been most commonly found osteoporosis-related fracture in archaeological material (Brickley 2002). The hypothesis of a low risk of deliberate violence in the late antique *Incerum* is furthermore supported by the complete absence of perimortem trauma and trauma inflicted by sharp-edged weapons. However, two cranial fractures might suggest an occasional occurrence of intentional violence in Tekić, due to the fact that both fractures are located on the frontal bones, and according to some authors head and face traumas are clear evidence of intentional violence (e. g. Alvrus 1999; Standen and Arriaza 2000).

Archaeologists who have excavated Treštanovačka gradina suggested, based on the archaeological material, that the burials in stone tombs at this necropolis belong

to local Romanized residents of *Incerum* while burials in earthen graves belong to the Germanic newcomers, most likely the Visigoths who settled in the region between 380 and 400 AD (Sokač-Stimac and Bulat 1974). However, some recent studies refute this hypothesis and suggest that these Germanic newcomers were not Visigoths, but the mixture of the Alans, Ostrogoths and Huns, and that they did not settle in the area around Požega and the present-day Slavonia but in the region north of the Drava river (Gračanin 2011). Unfortunately, at this point it is not possible to determine, based only on the bioarchaeological studies, whether the necropolis on the Trešta-novačka gradina belonged only to the Romanized natives or some Germanic settlers were also buried there. However, the development of modern molecular studies such as stable isotopes analyses and DNA analyses should give the answers to these, still unanswered, questions.

CONCLUSION

Although the skeletal sample presented in this paper is small, the results of bioarchaeological analysis suggest that life in Tekić was more or less similar to other communities in Croatia during the late antique period. Some skeletal and dental markers such as frequencies of alveolar bone disease, caries, *cribra orbitalia*, periostitis and Schmorl's nodes might indicate relatively poor living conditions (inadequate diet, occurrence of subadult anaemia and infectious diseases, very hard physical labour) in the Požega Valley, most probably due to a dramatic worsening of the political situation in the whole Roman Empire during the 4th century AD. On the other hand, skeletal indicators of health such as long bone fractures suggest that the 4th century AD in the region of Tekić was a relatively peaceful period without major outbreaks of violence which might be due to the fact that *Incerum* was located in a somewhat remote area of the Požega Valley outside of the main travelling routes, and as such it was spared from the destruction of war that devastated most of Pannonia.

Once again, it is necessary to emphasize the fact that the size of the analyzed sample from Tekić is relatively small and that all conclusions derived from this study must be taken with a certain amount of reserve. Only the future studies of this important site conducted on a larger skeletal sample and using the most sophisticated methods will give more definite answers to the questions concerning the details of everyday life of the late antique inhabitants of Tekić.

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SAŽETAK

Antropološka analiza ljudskih koštanih ostataka s kasnoantičke nekropole (4. st.) Tekić – Treštanovačka gradina kod Požege

Ovaj rad predstavlja rezultate bioarheološke analize provedene na koštanom materijalu s kasnoantičkog (4. st.) nalazišta Tekić – Treštanovačka gradina kraj Požege. Ukupno je analizirano 28 kostura za eventualnu prisutnost karijesa, alveolarnih oboljenja, *cribrae orbitaliae*, hipoplazije zubne cakline, degenerativnog osteoartritisa na kralješcima i velikim zglobovima, Schmorlovih defekata na kralješcima, periostitisa i trauma. Ovaj je uzorak karakterističan po relativno visokoj učestalosti karijesa i alveolarnih oboljenja, što je najvjerojatnije rezultat loše oralne higijene i prehrane temeljene na žitaricama. Visoke učestalosti *cribrae orbitaliae*, hipoplazije zubne cakline i periostitisa sugeriraju učestale epizode fiziološkog stresa poput gladovanja i zaraznih bolesti. Distribucija i učestalost koštanih trauma pokazuju relativno niski stupanj međuljudskog nasilja u analiziranoj populaciji.

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