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and flight attendants for navicular height, tarsal height, foot breadth, ankle circumference, bimalleolar circumference, distance between Feiss line and navicula ($p<0.05$). These findings showed that working for long-standing time cause the change of foot structure because of static contraction of muscles. In conclusion, it is thought that the results of this first study about flight attendans'foot morphological analysis will make a contribution to understsanding of the effect of long-standing time on foot morphology and the foot dimensions in the air transportation employees.

Keywords: Foot, foot morphology, standing, air transportation employees

P-197

Estimation of height using percutaneous length of tibia and ulna in Iran

Broujeni FB, Hasanzadeh G

Department of Anatomy, Tehran University of Medical Science, Tehran, Iran

Objectives: Estimation of height based on bones of limb, sexuality and other human characteristics is one of main topic of research in forensic medicine and anthropology.

Methods: In this paper, the stature of 111 females and 71 males and their length of percutaneous of tibia and ulna were obtained from medical students in Tehran university of Iran. Using these data, three different models were applied. First, a single variable regression equation of percutaneous length of tibia is developed to determine the height of males and females. The second single variable regression model is based on the percutaneous length of ulna and the final model was a multivariable regression model of percutaneous length of tibia and ulna.

Results: The results show that the percutaneous length of ulna has superior effect on height ($R2=0.48$) than the percutaneous length of tibia ($R2=0.31$). Also the multi-variable regression which it is considered both of percutaneous length of ulna and tibia has better agreement with measured data ($R2=0.58$). Furthermore, the relative errors for the mentioned models were 2.8 to 3.8%.

Keywords: Anthropology, percutaneous tibia, percutaneous ulna, multi-variable regression

P-198

Analysis of ganglion structures of the myenteric nervous plexus inferior part of the human duodenum during aging

Mandic P, Vitosevic Z, Macut ND, Filipovic T, Gasic M

Institute of Anatomy, Medical Faculty Pristina, Kosovska Mitrovica

Objectives: Aging is a process that affects the structure and function of the enteric nervous system, but available are few specific information on this theme, especially in humans. The aim of this study was to investigate the effect of age on the structure of the myenteric ganglions in the inferior part of the human duodenum. Specimens were obtained from 30 cadavers aged 20 to 84 years old.

Methods: Tissue samples of inferior part of the duodenum are divided by age into three groups (20-44, 45-64 and 65-84 years). After histological processing samples were stained with HE, Cresyl violet and AgNO3 staining method. The morphometric analysis was performed using multipurpose test system M42. The results were analyzed by one-way ANOVA method with post hoc Tukey test.

Results: Number of neurons per unit of area of the myenteric plexus in all three age groups is expressed as mean±SD. Noticeable is a significant decreasing ($p<0.001$) in the number of neurons at people aged between 65-84 years. Myenteric ganglions of very old people include areas where is a very small number of neurons. Evident was decreasing the number of neurons of 21.02% in the oldest (65-84 years) compared to the youngest (20-44 years). With aging comes to significant increase ($p<0.05$) surface of the neuronal soma and surface of their nuclei.

Conclusion: During the aging there is a significant loss in the number of neurons. There is a present tendency to compensate that loss of neurons by increasing the size of their soma and their nuclei.

Keywords: Myenteric plexus, duodenum, aging.

P-199

The incidence and topographic distribution of sutures including Wormian bones in human skulls

Çırpan S, Aksu F, Mas N

Department of Anatomy, Faculty of Medicine, Dokuz Eylul University, İzmir, Turkey

Objectives: The Wormian Bones (WB's) are accessory bones located within the cranial sutures and fontanelles. The present article examine the incidence of WB's and compare the number and topographic distribution between the sutures including WB's in skulls of West Anatolian Population.

Methods: 150 crania were examined. The parameters evaluated in the present study were as follows: the rate of skulls including WB's; the topographic distribution and frequencies of the sutures including WB's; the number of these sutures for each skull; the name and number of sutures which were bilaterally and symmetrically located on the right and left side of skull (paired sutures) and which coincidentally had WB's for each skull; the differences of frequencies between the paired sutures including WB's.

Results: The rate of skulls including WB's was determined as 59.3%. The maximum and minimum number of sutures

including WB's were six in one skull and one in each of 30 skulls, respectively. The maximum and minimum rates of sutures which had WB's were found in left lambdoid 40.7% and right occipitomastoid 1.3% sutures, respectively. There was only a significant difference between the rate of right and left squamous sutures, (p=0.04). Forty-five skulls were including fifty-five pair of bilaterally and symmetrically located sutures which coincidentally had WB's in each pair. The each of thirty-five skulls had one pair of sutures including WB's and each of ten skulls had two pairs.

Conclusion: In the present study, the rate of WB's were determined as 59.3% in West Anatolian Population. This incidence rate is considerably lower than the other reports, and it may be as a result of racial variations. These divergent bones were more frequently found in left lambdoid sutures (40.7%) and less frequently in right occipitomastoid sutures (1.3%). This study may guide the investigators dealing with the neurosurgery, orthopedy, radiology, anatomy and anthropology in their practice.

P-200

Coexistence of Wormian bones with metopism, and vice versa in adult skulls

Çırpan S, Aksu F, Mas N, Mağden AO

Department of Anatomy, Faculty of Medicine, Dokuz Eylül University, İzmir, Turkey

Objectives: To investigate coexistence of Wormian Bones (WB's) with metopism, and vice versa in adult skulls.

Methods: 160 dry adult human skulls were randomly selected from Dokuz Eylul University of Medical Faculty's Anatomy Laboratory. The skulls were examined for presence of metopism, WB's, coexistence of WB's with metopism and vice versa. Topographic distribution of the WBs were macroscopically evaluated within the skulls including metopism.

Results: The frequency of metopism and WBs in 160 skulls is as 7.50% (12/160) and 59.3% (95/160), respectively, $p<0.05$. The incidence of coexistence of WB's with metopism was found as 11 of 12 skulls (91.66%), whereas the incidence of coexistence of metopism with WB's was found as 11 of 95 skulls (11.58%), $p<0.05$. There were totally 23 sutures including WB's in 11 skulls which had metopism. The number (%) of metopic skulls for each specific suture including WB's were found as: 11 lamdoid sutures in 7/11 (63.63%) skulls, 4 lamda in 4/11 (36.36%) skulls, 2 asterion in 2/11 (18.18%) skulls, 1 squamous in 1/11 (9.09%) skull, 2 sagittal in 2/11 (18.18%) skulls and 3 parieromsatoid sutures in 2/11 (18.18%) skulls. The distribution of these 23 WB's in sutures of 11 skulls including metopisms is determined as follows: 11/23 (47.82%) WB's at lambdoid sutures; 4/23 (17.39%) WB's at lambda; 2/23 (8.69%) WB's at asterion; 1/23 (4.34%) WB's at the left squamous suture; 2/23 (8.69%) WB's at sagittal sutures; 3/23 (13.04%) WB's at parietomastoid sutures.

Conclusion: There was a significant difference in rates between coexistence of WBs with metopism (91.66%) and coexistence of metopism with WBs (11.58%). The factors leading to metopism may also lead to WB's, whereas that the factors leading to WB's may not lead to metopism.

P-201

Suprascapular foramen: a rare variation caused by ossified suprascapular ligaments

Çırpan S*, Mas NG*, Aksu F*, Edizer M*, Karabekir S**, Mağden AO*

**Department of Anatomy, Faculty of Medicine, Dokuz Eylül University, İzmir, Turkey; **Department of Neurosurgery, Faculty of Medicine, Dokuz Eylül University, İzmir, Turkey*

Objectives: The aim of this study was to investigate the incidence of the suprascapular foramen in West Anatolian Population.

Methods: Eighty-one dried human scapulae of West Anatolian people of unknown ages and gender belonging to the Anatomy Department Laboratory of Dokuz Eylül University Medical Faculty were examined macroscopically. The vertical and transverse diameters of the suprascapular foramen and central tickness of the ossified ligaments were measured with caliper in milimeters and digital caliper, respectively.

Results: We observed the suprascapular foramen due to ossification of the suprascapular ligament only in 2 of 81 (2.47%) scapulae. The vertical and transverse diameters of the suprascapular foramen and central thickness of the ossified ligaments (No-1 and 2) were measured as 0.80 mm versus 0.40 mm, 0.36 mm versus 0.20 mm and 0.40 mm versus 0.14 mm, respectively.

Conclusion: The suprascapular foramen caused by ossified suprascapular ligament is rarely observed variation in West Anatolian Population. Early diagnosis of the suprascapular nerve(SN) entrapment causing muscular atrophy is diffucult before the occurence of complaints such as deeply and poorly localized pain. The treatment of the SN compression starts with physical therapy for strengthening the rotator cuff muscles. The nerve blockage by a local anesthetic can relief the pain only for a short time and simultaneously provide diagnosis. It can be treated by surgical removal of the ossified transverse scapular ligament. The ossified suprascapular ligament narrows the suprascapular foramen; therefore, it causes compression of SN and complaints of SN entrapment. It is essential to define precisely the anatomical variations of scapular notch, scapular ligament, SN and vessels for surgeons performing SN decompression surgery, especially with arthroscopic techniques. We assume that the present study may guide the medical doctors and the surgeons during diagnostic and surgical procedures related with suprascapular notch.