

Abstract: Basic Sciences

An Evaluation of Carrying Angle and its Correlation with Various Parameters

Pawan Kumar Jangid

Department of Anatomy, JLN Medical College and Associated Group of Hospitals, Ajmer, Rajasthan, India

INTRODUCTION

In the anatomic position, the long axis of the humerus and the long axis of the ulna form an acute angle medially at the elbow which is called the carrying angle. The present study aimed to estimate the gender dominant handedness difference in the carrying angle of males and females and the correlation of carrying angle with age, height, and weight of subject, variation of length of arm and forearm ratio, waist to hip ratio, and changes in BMI.

METHODS

The present study was conducted on 500 subjects in the Department of Anatomy. The inclusion criteria were individuals in the age group from 15 to 35 years of either sex. Individuals with history of fractures around the elbow and shoulder joint and with any congenital condition of elbow and shoulder were excluded from the study. A Goniometer was used for measurement of carrying angle

RESULTS

In the present study, the mean carrying angle on right side was found to be $11.74^\circ \pm 2.55^\circ$ and on left side was $10.93^\circ \pm 2.59^\circ$. The mean carrying angle in females and males was $14.06^\circ \pm 1.96^\circ$ and $10.05^\circ \pm 1.28^\circ$ on right side and $13.27^\circ \pm 2.02^\circ$ and $9.21^\circ \pm 1.29^\circ$ on left side, respectively. The difference between male and female carrying angle was found to be significant ($p < 0.05$).

CONCLUSION

Greater carrying angle in female is considered as a secondary sex characteristic. This study demonstrated that age, sex, BMI, and dominant side are important factors that affect the value of the carrying angle.

A Morphological Study of Brachial Artery in Cadavers

Sushant

Department of Anatomy, RNT Medical College and Associated Group of Hospitals, Udaipur, Rajasthan, India

INTRODUCTION

Knowledge of variations in branching pattern of brachial artery is must for all clinicians and especially for vascular and orthopedic surgeons to avoid complications. The present study was done to study the origin, course, and branching pattern of brachial artery, to measure the length of brachial arteries in cadavers, and clinical significance of these variations.

METHODS

The present study was conducted on 100 upper limbs of 50 cadavers by conventional dissection method. Brachial artery was identified, cleaned and dissected, and assessed for the length of brachial artery, variation in the branching pattern, and the course in relation to the median nerve.

RESULTS

The average length of the brachial artery was 26.83 cm. Double profunda brachii artery was noted in 1%, profunda brachii artery was a branch of 3rd part of axillary artery in 2%, present as common trunk with posterior circumflex humeral artery in 1%, and profunda brachii artery was absent in 2% cases, superior ulnar collateral artery was present as common trunk with profunda brachii artery in 2% cases, radial artery was branch of brachial artery in 8%, muscular branches to biceps brachii were observed one in 89% and two in 11% cases, to brachialis were observed one in 91% cases and two in 9% cases, to coracobrachialis were observed one in 100 cases, whereas brachial artery crossed superficial to median nerve in 6% cases.

CONCLUSION

Knowledge of possible variations in the branching pattern of various arteries is important during vascular and reconstructive surgery.

Levels of Serum Ghrelin and High Sensitivity C-Reactive Protein in Patients with Thyroid Disorder

Kavita Sharma, GG Kaushik

Department of Biochemistry, JLN Medical College and Associated Group of Hospitals, Ajmer, Rajasthan, India

INTRODUCTION

Hypothyroidism is a common endocrine disorder resulting from deficiency of thyroid hormone. Hyperthyroidism is a set of disorders that involve excess synthesis and secretion of thyroid hormone by the thyroid gland. Ghrelin is octanoylated peptide containing a 28 amino acid and act as an energy balance regulator and play an important role in metabolic process. C-reactive protein (CRP), a classic acute-phase reactant, is an important sensitive marker of low grade inflammation. The purpose of this study was to evaluate the status of Ghrelin and hs-CRP levels in patients with hypothyroidism and hyperthyroidism and to establish possible relationship between them.

METHODS

This study was carried out on 65 hypothyroid and 65 hyperthyroid subjects and 130 euthyroid controls. Biochemical analytes measured were serum FT3, FT4, TSH, Ghrelin, and hs-CRP. Enzyme linked immunosorbent assay (ELISA) method was used to measure serum Ghrelin and hs-CRP. Chemiluminescence immuno assay (CLIA) was used to measure FT3, FT4, and TSH.

RESULTS

The mean serum levels of Ghrelin and hs-CRP in hypothyroid subjects were 541.0 ± 41.0 pg/ml and 5.7 ± 4.9 mg/L, in hyperthyroid subjects were 350.0 ± 43.0 pg/ml and 3.2 ± 2.2 mg/L and in euthyroid subjects were 489.0 ± 48.0 pg/ml and 1.9 ± 1.2 mg/L, respectively. These values were found to be statistically highly significant ($p < 0.0001$).

CONCLUSION

There is a positive association between serum TSH level and Ghrelin level. Levels of hs-CRP were elevated in both hypothyroid and hyperthyroid subjects.

Role of Yoga in Reducing Inflammation and Oxidative Stress in Patients of Type 2 Diabetes Mellitus

Sonal Bhardwaj, Sonali Sharma

Department of Biochemistry, RUHS College of Medical Sciences and Associated Hospitals, Jaipur, Rajasthan, India

INTRODUCTION

For reducing the cost of diabetes care and side effects of medications, there is need to implement lifestyle measures. The aim of the study was to study the effects of yoga intervention on glycemic status, lipid levels, anthropometric parameters, inflammatory markers, oxidative stress, psycho-social factors, and quality of life (QOL) in patients of T2DM.

METHODS

This was a prospective randomized hospital based study conducted on 104 participants of T2DM (in age group of 30-65 years and of either gender) who were randomized into two study groups viz. control and yoga group. Approximately 40 minutes of yogasana for five days (minimum) a week for six months was performed in yoga group. Serum glucose (fasting, post prandial), glycated hemoglobin, lipid profile, inflammatory markers (hs CRP), and total antioxidant status (TAS) were analyzed by using auto-analyzer. Interleukin-6 was analyzed by ELISA method. Various questionnaires for assessing stress, depression, and QOL were filled by study participants.

RESULTS

Serum glucose, glycated hemoglobin, and lipid profile were significantly improved in participants of yoga group as compared to the control group participants. A significant reduction was observed in inflammatory markers (IL-6 and hs CRP) and improvement in TAS levels and QOL was observed as compared to control group after six months of intervention.

CONCLUSION

Yoga intervention positively addressed the QOL and aids in correcting elevated glucose levels, dyslipidemia, inflammation, and oxidative stress in type 2 diabetes mellitus.

Effect of Isotonic Handgrip Exercise on Blood Pressure in Normal Weight and Pre-obese Medical Students in Jhalawar Medical College

Satya Prakash Dhakar, Rajesh Agrawal

Department of Physiology, Jhalawar Medical College and Associated Group of Hospitals, Jhalawar, Rajasthan, India

INTRODUCTION

Management of high blood pressure (BP) focuses on lifestyle modifications and drugs. Isotonic handgrip (IHG) training can be a potential therapeutic modality. The study aimed to evaluate the effects of isotonic handgrip exercise by using smiley balls on blood pressure among age matched healthy normal weight and pre-obese medical students in both genders with the objective to find a user friendly exercise which helps in reducing blood pressure.

METHODS

The randomized controlled study was conducted in the Department of Physiology in 100 medical students of normal weight and pre-obese adults (50 boys and 50 girls) in the age group of 18-25 years. The study participants were first tested for pre-exercise (baseline) pulse rate and blood pressure followed by isotonic handgrip exercise which was performed at the rate of 20 contractions/minute for 10 minutes using smiley ball. Immediately after exercise, pulse rate and blood pressure were taken.

RESULTS

In males, intergroup comparisons between all parameters after exercise were observed to be statistically significant (p -value < 0.05), except for pulse rate. In females, intergroup comparisons between all parameters after exercise were observed to be statistically insignificant (p -value > 0.05), except for SBP.

CONCLUSION

It was concluded that the IHG test can be used as an effective screening test to identify risk of developing hypertension. IHG exercise training might be a simple, cost-effective, and non-pharmacological method in lowering blood pressure.

Comparison of Hearing Ability between Visually Blind and Normal Sighted Subjects at a Tertiary Care Centre

Sunderlal, Devkishan Devera, BK Binawara, PK Narnolia

Department of Physiology, SP Medical College and Associated Group of Hospitals, Bikaner, Rajasthan, India

INTRODUCTION

Alertness of individuals, particularly blind persons in response to external stimuli is very critical for their day to day activities. The scope of this present study was to compare hearing ability between visually blind and normal sighted subjects at a tertiary care center in Rajasthan.

METHODS

This cross-sectional study was carried out in the Department of Physiology. Two groups of 30 individuals in each, visually blind and normal vision (study and control group, respectively), were formed. All the parameters were tabulated using MS excel and analyzed using SPSS version 22.0.

RESULTS

The mean age was found to be 27.56 ± 6.06 years for study group and 26.59 ± 6.07 years for control group. Significant difference was found between blind and normal sighted group in peak latency of wave V in Brainstem Auditory Evoked Potential. There was no statistically significant difference between the mean value of wave I latency and mean value of wave III latency of right and left side in the study and control group. The mean value of wave V latency of right and left side in blind was significantly lower in blind group. The mean value of inter peak latency of wave I-III, III-V and I-V on right and left side in blind were found to be non significant between study and control group.

CONCLUSION

The results suggested that earlier the onset of deficit more will be the development of plasticity changes. The blind patients show shortening of wave V latency in Brainstem Auditory Evoked Potential study.

Prevalence of Autoantibodies in Underweight Diabetic Adult Subjects in Southern Rajasthan

Akhilaksh Haisan

Department of Biochemistry, RNT Medical College and Associated Group of Hospitals, Udaipur, Rajasthan, India

INTRODUCTION

Many tribes reside in southern part of Rajasthan who, despite having enough physical activity and normal to low body weight, develop diabetes even in absence of positive family history. The aim of the present study was to evaluate the autoantibody profile of these underweight, physically active diabetic subjects in Udaipur region of Rajasthan and to know the exact etiology of their diabetes.

METHODS

Antibodies against glutamic acid decarboxylase (anti-GAD) and tissue transglutaminase (anti-TTG IgA) were measured in 110 underweight type 1 diabetes mellitus (T1DM) patients of age 18 to 60 years using ELISA.

RESULTS

The prevalence of anti-GAD and anti-TTG IgA antibodies among the patients was 91% and 4.5%, respectively. Male patients have higher seroprevalence of both anti-GAD and anti-TTG IgA antibodies. Patients below 40 years age have higher seroprevalence of both antibodies than above 40 years age patients. It emerges from the present study that 67% of antibodies positive patients were diagnosed below the age of 30 years whereas age of diagnosis in 33% of patients was above 30 years. Mean level of random blood glucose at the time of diagnosis for antibodies positive patients was found to be 490.68 mg% which was statistically significant ($p < 0.05$) when compared to seronegative patients.

CONCLUSION

GAD antibodies and tTG IgA are prevalent in diabetics and the former positively correlate with lean diabetics with insulin dependence. Screening for antibodies in diabetics should be encouraged for prompt diagnosis and better management.

A Comparative Study of Lipid Profile Among Patients of Chronic Kidney Disease undergoing Hemodialysis and Peritoneal Dialysis at SMS Medical College, Jaipur

Avneesh Sharma

Department of Biochemistry, SMS Medical College and Associated Group of Hospitals, Jaipur, Rajasthan, India

INTRODUCTION

Deterioration of function of kidney resulting in glomerular filtration rate (GFR) < 60 ml/min/1.73 m² body surface area for ≥ 3 months duration irrespective of cause is called chronic kidney disease (CKD). Dialysis is the procedure of removing waste products of body metabolism by diffusion process through dialysis machine having dialyzer containing semipermeable membrane and removes extra water from extra cellular fluid compartment through ultrafiltration in chronic renal failure patients. This study was aimed to compare the effect of type of dialysis on total lipid profile in chronic kidney disease patients.

METHODS

The present observational, cross-sectional study was done on 60 diagnosed chronic kidney disease cases (30 patients undergoing hemodialysis and 30 patients undergoing peritoneal dialysis) after all essential clearance was obtained. Serum level of lipid profile consisting of total cholesterol (TC), triglycerides (TG), HDL-C, LDL-C, and VLDL-C was measured.

RESULTS

Serum total cholesterol, LDL-C, VLDL, TG values were significantly higher and HDL-C was significantly lower in CKD patients undergoing peritoneal dialysis.

CONCLUSION

Due to evidence of developing more atherogenic profile in continuous ambulatory peritoneal dialysis patients, more chances of cardiovascular complications are there in continuous ambulatory peritoneal dialysis (CAPD) therapy as compared to haemodialysis therapy in CKD patients.

Morphological Study of Sacral Hiatus in Dry Human Sacrum in Udaipur

Lekhni Vyas

Department of Anatomy, RNT Medical College and Associated Group of Hospitals, Udaipur, Rajasthan, India

INTRODUCTION

Sacral hiatus is an important landmark used during caudal epidural anesthesia or block (CEB). The present study was planned to study the various anatomical variations to improve the reliability of caudal epidural anesthesia.

METHODS

A descriptive type of observational study was conducted on 80 dry human sacra. Morphological features such as sex of sacra, shape of sacral hiatus, level of apex, base, length, transverse width, and antero-posterior diameter of sacral hiatus with respect to sacral vertebrae were observed.

RESULTS

Out of total 80 sacra, 47 were male and 33 were female. It was observed that 53.75%, 27.50%, 11.25%, 5%, and 2.5% sacra were having inverted V, inverted U, dumbbell, irregular, and spina bifida shaped sacral hiatus, respectively. When level of apex and base of sacral hiatus was observed with respect to sacral vertebrae, apex was mostly present at the level of 4th sacral vertebra (47.44%) whereas most common (92.31%) location of base of sacral hiatus was at the level of 5th sacral vertebrae. The mean length of sacral hiatus among female sacra was 23.96 mm and 23.53 mm among male. The mean transverse width was 14.24 ± 2.49 mm in female and 14.41 ± 2.46 mm in male. The mean antero-posterior diameter in female was 4.91 ± 1.62 mm and 4.60 ± 1.62 mm in male.

CONCLUSION

The exact localization of the sacral hiatus would help in easy placement of needle into the hiatus.

A Study on Association of Subclinical Hypothyroidism and Pre-eclampsia in Pregnancy

Mahesh Chandra Mehara

Department of Biochemistry, Government Medical College and Associated Group of Hospitals, Kota, Rajasthan, India

INTRODUCTION

Pre-eclampsia is a pregnancy specific syndrome characterized by new onset hypertension and proteinuria. Recent evidence indicates that maternal endothelial dysfunction in pre-eclampsia results from increased soluble fms-like tyrosine kinase-1 (sFlt-1), a circulating anti-angiogenic protein. Furthermore, studies in mice using vascular endothelial growth factor inhibitors such as soluble fms-like tyrosine kinase-1 have shown substantial thyroid capillary regression and increased concentration of thyroid stimulating hormone. The present study aimed to observe the association between subclinical hypo-thyroidism and pre-eclampsia in pregnancy.

METHODS

A comparative cross sectional study was conducted from November 2016 to October 2017. Hundred cases and 100 controls were selected at random. Quantitative data was tabulated and analyzed by using (SPSS) software.

RESULTS

The mean activity of serum TSH (5.50 ± 2.29 μ IU/mL), serum T4 (4.27 ± 1.86 μ g/dL), and serum T3 (1.08 ± 0.32 ng/mL) of patients with pre-eclampsia who had mean systolic blood pressure (142 ± 9 mmHg) and mean diastolic blood pressure (92 ± 8 mmHg) shows significant difference from that of normal subjects who had mean systolic blood pressure (111 ± 8 mmHg) and mean diastolic blood pressure (63 ± 8 mmHg).

CONCLUSION

The outcome of the present study suggests that pre-eclampsia is associated with subclinical hypothyroidism during pregnancy. Women with a history of pre-eclampsia are at greater risk of hypothyroid function.