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Comparison of anthropometric indices of obesity to predict dyslipidaemia among medical students

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ABSTRACT--*Obesity is a global epidemic threatening healthy population in increasing number of countries. In developed countries prevalence of obesity is rising because of decrease physical work, increase consumption of junk food and alcohol and discrepancy between consumption of energy and utilisation of energy Obesity. Anthropometric parameters are better tool in clinical practice of being a easy to take reading and measurements with good reproducibility, especially in country like India. This study is done to determine the prevalence of obesity and dyslipidaemia among medical students and to study the risk factors for obesity and dyslipidaemia among medical studentsTo determine the prevalence of obesity and dyslipidaemia among medical students.The study the risk factors for obesity and dyslipidaemia among medical student we did a cross sectional study in 100 medical students. Participants were subjected to anthropometric measurements such as height, weight, waist circumference (WC), and hip circumference using standard procedures on the same morning of the day, as the blood sample was collected after overnight fast and estimated for fasting blood sugar and lipid profile.Expected Results and Conclusion- lipid profile best reflect by using anthrometric parameter i.e WC. In a developing country like India, where measurement of cardiovascular risk factors such as body fat saturation and lipid profile remains difficult in the rural population, WC may be used as an effective tool, without being used as a substitute*

Keywords--*Body mass index, medical student, lipid profile waist circumference*

I. INTRODUCTION

Obesity is a global epidemic threatening healthy population in increasing number of countries. In developed countries, sedentary lifestyle, faulty dietary habits results in an imbalance between energy intake and energy expenditure leading to obesity.(1) being global panedemic, obesity has various phenotype , like metbollic obesity, metabolic unhealthy obesity, and normal weight. These study also suggest that incidence of diabetic mellitus, dyslipedemia , cardiovascular disease is increased.

Worldwide obesity has been nearly three times since 1975. More than 1.9 billion adults, were overweight by year 2016 .of these over 650 million, i.e. 39% of adults aged 18 years and over were overweight & 13% were obese In India , obesity is an important health problem particularly in urban areas , replacing the more traditional health concern including undernutrition . Prevalence of obesity is seen in 30-65% of adult urban population . (1)

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Obesity in turn, leads to significant morbidity in the form of cardiovascular complication, diabetes, hypertension, cancer, and skeletal complication.(2,3)

Globally it is estimated that, in year 2013 23.6% of young boys and 22.5% young girls were living with obesity.(4)

In India , the estimates available are patchy however studies conducted in certain states like Maharashtra , Tamil Nadu , Jharkhand , Chandigarh showed an overall obesity rate of 24.6%(2010)(5)

India is a relatively young country with 65% population being under the age of 35 years. This is the population that constitutes the major workforce of the country(6)

Obesity and associated consequences lead to morbidity and loss of working man hours and thereby reduced productivity in every field of national economy.

It therefore becomes imperative that obesity should be addressed on all fronts such as screening, documentation and health care measures and guidelines for reduction of obesity and its complication.

Dyslipidemia is an abnormal amount of lipids in the blood (triglycerides, cholesterol and /or fat phospholipids)due to lipoprotein overproduction or deficiency. In developed countries most dyslipidemias are hyperlipidemias . This is most often due to diet and lifestyle.

Obesity defined as per body mass index (BMI) For Asia pacific region -

Underweight (<18.05kg/m2)

Normal or lean (18.5-22.9kg/m2)

Overweight (>25kg/m2)

Obesity (>30kg/m2)

In our study we have chosen to study obesity in young population and its impact on dyslipidaemia.

A**IM-**Comparison of Anthropometric indices of obesity to predict dyslipidaemia among medical students.

II. OBJECTIVES

- To determine the prevalence of obesity and dyslipidaemia among medical students.
- The study the risk factors for obesity and dyslipidaemia among medical students

III. MATERIAL AND METHODS

STUDY SETTING

This study will be carried out at ACHARYA VINOBHA BHAVE RURAL HOSPITAL, JAWAHAR LAL NEHRU MEDICAL COLLEGE, DATTA MEHGE INSITUTE OF MEDICAL SCIENCE, SAWANGI , WARDHA. This is a 1400 bed, Multispecialty tertiary care hospital situated in WARDHA, MAHARASTRA

DURATION-

Duration of study will be from August 2018 to august 2020

STUDY DESIGN:

Observational cross sectional study

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SUBJECTS:

All Mbbs students admitted in JNMC during study periods (Admission from 2016 -2020)

INCLUSION CRITERIA

All medical students admitted to MBBS course during years 2016-2020

EXCLUSION CRITERIA

Non consenting students/subjects.

IV. METHODOLOGY

Subjects to be included in study will be explained regarding the study & proper consent will be obtained.

Selected subjects will be divided into lots/tranches of 10 each & will be requested to attend medicine OPD as per mutual convenience of the students & research scholar (principle investigator)

In medicine OPD, the subjects will undergo examination for measurement of anthropometric indices. The values of the same will be recorded in designated proforma , relavant personal history will be enquired & entered in proforma.

Further, the subjects will be instructed regarding the need for overnight fasting after dinner & report to medicine OPD the next morning for withdrawal of blood sample for lipid profile estimation, whenever necessary & unavoidable the sample would also be collected at the residence of the subjects**.**

Subjects will advise to maintain overnight fast for 8 hours prior to examination.

V. ANTHROPOMETRIC MEASUREMENTS

The following parameters will be studied

WEIGHT
HEIGHT
WAIST CIRCUMFERNCE
HIP CIRCUMFERENCE
WAIST- HIP RATIO
BODY MASS INDEX
NECK CIRCUMFERENCE

***WEIGHT*- weight** in kilograms will be recorded with the subject standing position motionlesson the standing weighing scale without foot wear and with light clothes using portable weight scale and measuring inflexible bars with high accuracy.

***HEIGHT*-** measured in centimetres standing in a erect position against vertical scale without foot wear and the head positioned so the top of the external auditory meatus will level with margin of bony orbit.(Frankfurt plane) Who criteria for BMI for Asia-pacific region will be used in this study

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Underweight (<18.0525kg/m2)

Normal or lean (18.5-22.925kg/m2)

Overweight (>25kg/m2)

Obesity-(>30kg/m2)

WAIST HIP RATIO- As per WHO protocol

waist circumference - Should be measured at midpoint between lower margin of the last palpable rib and the top of iliac crest,

Hip circumference- Measured around the widest portion of the buttocks

Obesity for men WHR0.>0.9

Women WHR >0.85

VI. BMI

BMI is a value derieved from the mass (weight) and height of an individual. The weight of the person (in kg) is divided by height in metre square. BMI of 30 or more is generally considered obese, while BMI of 25 or more is considered overweight. As per WHO: BMI classified are as follow

CLASS	BMI
Very severely underweight	< 15 kg/m2
Severely Underweight:	15-16 kg/m2
underweight	16-18.5 kg/m2
Normal	18.5-25 kg/m2
overweight	25-30 kg/m2
Obese class I (moderatlely obese)	30-35 kg/m2
Obeses class II(several obese)	35-40 kg/m2
Obeses class III (very severly obeses)	40-45 kg/m2
Obeses class IV (morbidly obeses)	45-50 kg/m2

NECK CIRCUMFERENCE *:* Method to differentiate between normal and abnormal fat distribution . Marker of upper body subcutaneous adipose tissue distribution and dyslipidemia found in type II diabetic mellitus. Neck circumference more than 37 cm in men and more than 34cm in women are probably the best cut off points to determine subjects with central obesity .

Obesity in men NC> 37 cm

Obesity in women NC> 34 cm

VII. STATISTICAL ANALYSIS

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By using Microsoft excel sheet, Data will entered & and will be analysed with STATA version 13 statistical software. Test characteristics like case sensitivity, case specificity& its positive predictive value, negative predictive value, positive likelihood ratio, negative likelihood ratio and test accuracy will be calculated for all the obesity indices for predicting dyslipidaemia. From the data so obtained observations & conclusions will be arrived at.

VIII. DISCUSSION

Lipid profile best reflect by using anthropometric parameter i.e WC. In a developing country like India, where measurement of cardiovascular risk factors such as body fat saturation and lipid profile remains difficult in the rural population, WC may be used as an effective tool, without being used as a substitute. A number of studies on different aspects of the factors involved in this study for the context of rural region in Maharashtra were reviewed (7-75).

REFERENCES

1. Magnusson CG, Venn A, Thomson R, Juonala M, Srinivasan SR, Viikari JS, Berenson GS, Dwyer T, Raitakari OT. The association of pediatric low-and high-density lipoprotein cholesterol dyslipidemia classifications and change in dyslipidemia status with carotid intima-media thickness in adulthood: evidence from the Cardiovascular Risk in Young Finns Study, the Bogalusa Heart Study, and the CDAH (Childhood Determinants of Adult Health) Study. Journal of the American College of Cardiology. 2009 Mar 10;53(10):860-9.
2. Park SH, Choi SJ, Lee KS, Park HY. Waist circumference and waist-to-height ratio as predictors of cardiovascular disease risk in Korean adults. Circulation Journal. 2009;73(9):1643-50.
3. Ho SC, Chen YM, Woo JL, Leung SS, Lam TH, Janus ED. Association between simple anthropometric indices and cardiovascular risk factors. International journal of obesity. 2001 Nov;25(11):1689.
4. Lee CM, Huxley RR, Wildman RP, Woodward M. Indices of abdominal obesity are better discriminators of cardiovascular risk factors than BMI: a meta-analysis. Journal of clinical epidemiology. 2008 Jul 1;61(7):646-53.
5. Nahar N, Dubey S, Joshi A, Phadnis S, Sharma VK. Association of anthropometric indices of obesity with diabetes, hypertension and dyslipidemia: a study from central India. Indian journal of medical specialities. 2012 Jan 1;3(1).
6. Hirschler V, Molinari C, Maccallini G, Aranda C, Oestreicher K. Comparison of different anthropometric indices for identifying dyslipidemia in school children. Clinical biochemistry. 2011 Jun 1;44(8-9):659-64.
7. Acharya, Sourya, and Samarth Shukla. “Metabolic Healthy Obesity-A Paradoxical Fallacy?” JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH 12, no. 10 (October 2018): OE7–10. https://doi.org/10.7860/JCDR/2018/36809.12165
8. Acharya, Sourya, Samarth Shukla, and Anil Wanjari. “Subclinical Risk Markers for Cardiovascular Disease (CVD) in Metabolically Healthy Obese (MHO) Subjects.” JOURNAL OF CLINICAL AND

DIAGNOSTIC RESEARCH 13, no. 6 (June 2019): OC1–6. https://doi.org/10.7860/JCDR/2019/41317.12890.

9. Dangore-Khasbage, Suwarna. "Clinical Aspects of Oral Cancer: A Case Report Series." DENTAL AND MEDICAL PROBLEMS 54, no. 1 (March 2017): 85–89. https://doi.org/10.17219/dmp/67499
10. Gadbail, Amol Ramchandra, Minal Chaudhary, Madhuri Gawande, Alka Hande, Sachin Sarode, Satyajit Ashok Tekade, Sheetal Korde, et al. "Oral Squamous Cell Carcinoma in the Background of Oral Submucous Fibrosis Is a Distinct Clinicopathological Entity with Better Prognosis." JOURNAL OF ORAL PATHOLOGY & MEDICINE 46, no. 6 (July 2017): 448–53. https://doi.org/10.1111/jop.12553.
11. Gawande, Pallavi, Smrutiranjan Nayak, Abhay Mudey, and Ashish Nagrale. "Assessment of Risk Factor of NCD in Nachangaon Village at Wardha District." INTERNATIONAL JOURNAL OF MEDICAL RESEARCH & HEALTH SCIENCES 6, no. 4 (2017): 75–79.
12. Khatib, Mahalaqua Nazli, Abhay Gaidhane, Shilpa Gaidhane, and Zahiruddin Syed Quazi. "Ghrelin as a Promising Therapeutic Option for Cancer Cachexia." CELLULAR PHYSIOLOGY AND BIOCHEMISTRY 48, no. 5 (2018): 2172–88. https://doi.org/10.1159/000492559
13. Schwartz, G. G., P. G. Steg, M. Szarek, D. L. Bhatt, V. A. Bittner, R. Diaz, J. M. Edelberg, et al. "Alirocumab and Cardiovascular Outcomes after Acute Coronary Syndrome." NEW ENGLAND JOURNAL OF MEDICINE 379, no. 22 (November 29, 2018): 2097–2107. https://doi.org/10.1056/NEJMoa1801174
14. Rathi, Nikhil, Bharati Taksande, and Sunil Kumar. "Nerve Conduction Studies of Peripheral Motor and Sensory Nerves in the Subjects With Prediabetes." JOURNAL OF ENDOCRINOLOGY AND METABOLISM 9, no. 5 (October 2019): 147–50. https://doi.org/10.14740/jem602
15. Kute, P. K., M. G. Muddeshwar, and A. R. Sonare. "Pro-Oxidant and Anti-Oxidant Status in Patients of Psoriasis with Relation to Smoking and Alcoholism." JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS 8, no. 34 (August 26, 2019): 2677–80. https://doi.org/10.14260/jemds/2019/582
16. Hande, Alka Harish, Minal S. Chaudhary, Madhuri N. Gawande, Amol R. Gadbail, Prajakta R. Zade, Shree Bajaj, Swati K. Patil, and Satyajit Tekade. "Oral Submucous Fibrosis: An Enigmatic Morpho-Insight." JOURNAL OF CANCER RESEARCH AND THERAPEUTICS 15, no. 3 (September 2019): 463–69
17. Tripathi A, Avasthi A, Grover S, Sharma E, Lakdawala BM, Thirunavukarasu M, et al. Gender differences in obsessive-compulsive disorder: Findings from a multicentric study from northern India. Asian J Psychiatry 2018;37:3-9.
18. Yeola ME, Gode D, Bora AK. Evaluation of abdominal malignancies by minimal access surgery: Our experience in a rural setup in central India. World J Laparoscopic Surg 2018;11(3):115-120.
19. Srivastava TK, Mishra V, Waghmare LS. Formative assessment classroom techniques (FACts) for better learning in pre-clinical medical education: A controlled trial. J Clin Diagn Res 2018;12(9):JC01-JC08.
20. Balwani M, Bawankule C, Ramteke V, Pasari A. Hepatitis C virus, directly acting antivirals and Guillain-Barré syndrome. Saudi J Kidney Dis Transpl 2018;29(5):1237-1239.
21. Balwani MR, Pasari A, Meshram A, Jawahirani A, Tolani P, Laharwani H, et al. An initial evaluation of hypokalemia turned out distal renal tubular acidosis secondary to parathyroid adenoma. Saudi J Kidney Dis Transpl 2018;29(5):1216-1219.

22. Goyal RC, Choudhari SG, Tankhiwale SR. Assessment of competency based medical internship training with 'cumulative grade points average system'-An innovative step towards meeting 'vision 2015' of medical council of india. Indian J Public Health Res Dev 2018;9(8):155-162.
23. Yeola ME, Gode D, Bora AK. Diagnostic laparoscopy as an effective tool in evaluation of intra-abdominal malignancies. World J Laparoscopic Surg 2018;11(2):68-75.
24. Sharma S, Singh AD, Sharma SK, Tripathi M, Das CJ, Kumar R. Gallium-68 DOTA-NOC PET/CT as an alternate predictor of disease activity in sarcoidosis. Nucl Med Commun 2018;39(8):768-778.
25. Daigavane S, Prasad M. To observe the proportion of amblyopia among children presenting in a rural hospital in Central India. J Datta Meghe Inst Med Sci Univ 2018;13(3):119-121.
26. Gadge A, Acharya N, Shukla S, Phatak S. Comparative study of transvaginal sonography and hysteroscopy for the detection of endometrial lesions in women with abnormal uterine bleeding in perimenopausal age group. J SAFOG 2018;10(3):155-160.
27. Anjankar SD. Urethral protrusion of the distal end of shunt. J Pediatr Neurosci 2018;13(3):371-372.
28. Swarnkar M, Pandey P. Heterotopic subserosal pancreatic tissue in jejunum. Formosan J Surg 2018;51(4):167-170.
29. Choudhari MS, Sonkusale MI, Deshpande RA. Sudden cardiac arrest on 5 th day after coronary artery bypass graft surgery: Diagnostic dilemma. Ann Card Anaesth 2018;21(3):341-342.
30. Kirnake V, Arora A, Sharma P, Goyal M, Chawlani R, Toshniwal J, et al. Non-invasive aspartate aminotransferase to platelet ratio index correlates well with invasive hepatic venous pressure gradient in cirrhosis. Indian J Gastroenterol 2018;37(4):335-341.
31. Kürhade G, Nayak BS, Kurhade A, Unakal C, Kurhade K. Effect of martial arts training on IL-6 and other immunological parameters among Trinidadian subjects. J Sports Med Phys Fitness 2018;58(7-8):1110-1115.
32. Balwani MR, Bawankule C, Khetan P, Ramteke V, Tolani P, Kute V. An uncommon cause of rapidly progressive renal failure in a lupus patient: Pauci-immune crescentic glomerulonephritis. Saudi J Kidney Dis Transpl 2018;29(4):989-992.
33. Mohite D, Hande A, Gupta R, Chaudhary M, Mohite P, Patil S, et al. Immunohistochemical evaluation of expression pattern of p53, p63, and p73 in epithelial dysplasia. J Datta Meghe Inst Med Sci Univ 2018;13(3):122-129.
34. Rathi N, Chandak M, Mude G. Comparative evaluation of dentinal caries in restored cavity prepared by galvanic and sintered burs. Contemp Clin Dent 2018;9(5):S23-S27.
35. Gupta V, Bhake A. Reactive Lymphoid Hyperplasia or Tubercular Lymphadenitis: Can Real-Time PCR on Fine-Needle Aspirates Help Physicians in Concluding the Diagnosis? Acta Cytol 2018;62(3):204-208.
36. Zodpey S, Sharma A, Zahiruddin QS, Gaidhane A, Shrikhande S. Allopathic Doctors in India: Estimates, Norms and Projections. J Health Manage 2018;20(2):151-163.
37. Yadav S, Agrawal M, Hariharan C, Dewani D, Vadera K, Krishna N. A comparative study of serum lipid profile of women with preeclampsia and normotensive pregnancy. J Datta Meghe Inst Med Sci Univ 2018;13(2):83-86.
38. Bhinder HHPS, Kamble TK. The study of carotid intima-media thickness in prediabetes and its correlation with cardiovascular risk factors. J Datta Meghe Inst Med Sci Univ 2018;13(2):79-82.

39. Munjal R, Mudey G. Nasal carriage of Staphylococcus aureus among undergraduate medical students: Prevalence and antibiogram including methicillin resistance, inducible clindamycin resistance, and high-level mupirocin resistance. J Datta Meghe Inst Med Sci Univ 2018;13(2):91-94.
40. Mittal V, Jagzape T, Sachdeva P. Care seeking behaviour of families for their sick infants and factors impeding to their early care seeking in rural part of central India. J Clin Diagn Res 2018;12(4):SC08-SC12.
41. Choudhary S, Tarafdar P, Jawade S, Singh A. A point to note in pili torti. Int J Trichology 2018;10(2):95-97.
42. Madke B, Gardner JM. Enhanced worldwide dermatology-pathology interaction via Facebook, Twitter, and other social media platforms. Am J Dermatopathol 2018;40(3):168-172.
43. Girish M, Rawekar A, Jose S, Chaudhari U, Nanoti G. Utility of Low Fidelity Manikins for Learning High Quality Chest Compressions. Indian J Pediatr 2018;85(3):184-188.
44. Goswami J, Balwani MR, Kute V, Gumber M, Patel M, Godhani U. Scoring systems and outcome of chronic kidney disease patients admitted in intensive care units. Saudi J Kidney Dis Transpl 2018;29(2):310-317.
45. Mohite PM, Anjankar AJ, Patnod S. Organo pHOSPHORUS pOISONING: Prognostic value of GCS score and other clinical indicators in assessing the final outcome. J Indian Acad Forensic Med 2018;40(2):197-205.
46. Mathur K, Ninave S, Patond S, Ninave S, Wankhade P. A comparative study of estimation of stature by Bertillon's system among individuals of different regions of India. J Indian Acad Forensic Med 2018;40(3):301-306.
47. Kumar S, Bhayani P, Hathi D, Bhagwati J. Hyponatremia initial presenting feature of normal pressure hydrocephalus in elderly patient: A rare case report. J Gerontology Geriatrics 2018;66(3):156-157.
48. Jaiswal S, Banait S, Daigavane S. A comparative study on peripapillary retinal nerve fiber layer thickness in patients with iron-deficiency anemia to normal population. J Datta Meghe Inst Med Sci Univ 2018;13(1):9-11.
49. Deshpande P, Gupta V, Bhake A. Methylation pattern of retrotransposons: Biomarker for human cancer. J Datta Meghe Inst Med Sci Univ 2018;13(1):66-70.
50. Deshpande S, Phatak S, Marfani G, Gupta N, Daga S, Samad S. Sonographic evaluation of painful shoulder and its comparison with clinical diagnosis. J Datta Meghe Inst Med Sci Univ 2018;13(1):12-15.
51. Singh P, Jain S, Methwani D, Kalambe S, Chandravanshi D, Gaurkar S, et al. Study of correlation of pre-operative findings with intra-operative ossicular status in patients with chronic otitis media. Iran J Otorhinolaryngol 2018;30(5):273-281.
52. Papalkar P, Kumar S, Agrawal S, Raisinghani N, Marfani G, Mishra A. Heterotaxy syndrome presenting as severe pulmonary artery hypertension in a young old female: Case report. J Gerontology Geriatrics 2018;66(2):59-61.
53. Rawlani SM, Bhowate R, Kashikar S, Khubchandani M, Rawlani S, Chandak R. Morphological evaluation of temporo-mandibular joint in Indian population. Braz Dent Sci 2018;21(1):44-53.
54. Modi L, Gedam SR, Shivji IA, Babar V, Patil PS. Comparison of total self-stigma between schizophrenia and alcohol dependence patients. Int J High Risk Behav Addict 2018;7(3).

55. Rajan R, Gosavi SN, Dhakate V, Ninave S. A comparative study of equipotent doses of intrathecal clonidine and dexmedetomidine on characteristics of bupivacaine spinal anesthesia. J Datta Meghe Inst Med Sci Univ 2018;13(1):4-8.
56. Rajan R, Gosavi S, Dhakate V, Ninave S. A comparative study of equipotent doses of intrathecal clonidine and dexmedetomidine on characteristics of bupivacaine spinal anesthesia. J Datta Meghe Inst Med Sci Univ 2018;13(1):4-8.
57. Phatak S, Marfani G. Galactocele ultrasonography and elastography imaging with pathological correlation. J Datta Meghe Inst Med Sci Univ 2018;13(1):1-3.
58. Swarnkar M, Agrawal A. Kimura's disease. Formosan J Surg 2018;51(1):26-28.
59. Chiwhane A, Pradeep. Study of rhythm disturbances in acute myocardial infarction. J Assoc Phys India 2018;66(January):54-58.
60. Gupta V, Bhake A. Assessment of Clinically Suspected Tubercular Lymphadenopathy by Real-Time PCR Compared to Non-Molecular Methods on Lymph Node Aspirates. Acta Cytol 2018;62(1):4-11.
61. Anjankar S. Askin's tumor in adult: A rare clinical entity. J Datta Meghe Inst Med Sci Univ 2018;13(1):54-57.
62. Jain J, Banait S, Tiewsoh I, Choudhari M. Kikuchi's disease (histiocytic necrotizing lymphadenitis): A rare presentation with acute kidney injury, peripheral neuropathy, and aseptic meningitis with cutaneous involvement. Indian J Pathol Microbiol 2018;61(1):113-115.
63. Jain V, Waghmare L, Shrivastav T, Mahakalkar C. SNAPPS facilitates clinical reasoning in outpatient settings. Educ Health 2018;31(1):59-60.
64. Bains SK, John P, Nair D, Acharya S, Shukla S, Acharya N. Aptitude of medical research in undergraduate students of a medical university - Miles to go before we sow. J Clin Diagn Res 2017;11(12):JC07-JC11.
65. Taksande A, Meshram R, Yadav P, Lohakare A. Rare presentation of cerebral venous sinus thrombosis in a child. J Pediatr Neurosci 2017;12(4):389-392.
66. Choudhari MS, Charan N, Sonkusale MI, Deshpande RA. Inadvertent diversion of inferior vena cava to left atrium after repair of atrial septal defect - Early diagnosis and correction of error: Role of intraoperative transesophageal echocardiography. Ann Card Anaesth 2017;20(4):481-482.
67. Swarnkar M, Jain SC. Heterotopic subserosal pancreatic tissue in Jejunum-an incidental rare finding. J Krishna Inst Med Sci Univ 2017;6(4):105-108.
68. Taksande A, Meshram R, Yadav P, Borkar S, Lohkare A, Banode P. A rare case of Budd Chiari syndrome in a child. Int J Pediatr 2017;5(10):5809-5812.
69. Gupta V, Bhake A. Diagnosis of clinically suspected and unsuspected tubercular lymphadenopathy by cytology, culture, and smear microscopy. Indian J Tuberc 2017;64(4):314-317.
70. Gupta V, Bhake A. Clinical and cytological features in diagnosis of peripheral tubercular lymphadenitis – A hospital-based study from central India. Indian J Tuberc 2017;64(4):309-313.
71. Sharma SK, Chaubey J, Singh BK, Sharma R, Mittal A, Sharma A. Drug resistance patterns among extra-pulmonary tuberculosis cases in a tertiary care centre in North India. Int J Tuberc Lung Dis 2017;21(10):1112-1117.
72. Jyoti J, Nitin V, Shashank B, Pradeep D. Gamma glutamyl transferase levels in patients with acute coronary syndrome: A cross-sectional study. J Cardiovasc Dis Res 2017;8(4):121-125.

73. Saoji V, Madke B. Use of low-dose oral warfarin in three cases of livedoid vasculopathy. Indian J Dermatol 2017;62(5):508-511.
74. Dhamgaye TM, Bhaskaran DS. An unusual pulmonary metastatic manifestation of gestational choriocarcinoma: A diagnostic dilemma. Lung India 2017;34(5):490-491.
75. Jagzape A, Jagzape T, Pathak S. Medical education terminologies: Do these really percolate to the level of medical students? A survey. J Clin Diagn Res 2017;11(9):JC01-JC05.