



STUDY OF SERUM LIPID PROFILE IN BILIARY TRACT DISORDERS

Medicine

Dr. Richa Shukla* Jr3, RD Gardi Medical College, Ujjain (M.P), India. *Corresponding Author

Dr. Mrs. Rajshri Mukhiya Professor, RD Gardi Medical College, Ujjain (M.P), India.

Dr Satyendra Mukhiya Professor, RD Gardi Medical College, Ujjain (M.P), India.

KEYWORDS

INTRODUCTION

- The gall bladder along with biliary tract, a source of common ailments, varied presentations and insidious course of life taking ailments has remained an enigma for clinicians for centuries.
- The main function of the gallbladder is to concentrate and store hepatic bile in order to deliver it in a coordinated fashion to the duodenum in response to a meal.
- A diverse spectrum of diseases affects the biliary system often presenting with common signs and symptoms, Cholelithiasis being the most common of all. Others include, Cholelithiasis, Cholecystitis, Cholangitis, Cysts affecting biliary tract, and Neoplasms affecting biliary tract; primarily divided into Gall Bladder cancer, Cholangiocarcinoma, and Ampullary carcinomas.
- Gall stone diseases represents a significant burden for health care systems, with prevalence of gallstones ranges from 6% to 9% in the adult population in India. 1,2
- The incidence of gallbladder cancer parallels the prevalence of gall stone disease; large and long-standing gall stones being associated with a higher risk of gallbladder cancer³.
- Carcinoma of the gall bladder is only next to cervix uteri, breast and ovary in Madhya Pradesh state, as regards incidence and cancer related mortality amongst women⁴.
- Hyperlipidemia, is generally characterized by high serum levels of total cholesterol, triglycerides, low-density-lipoprotein (LDL), and low levels of high-density-lipoprotein (HDL).
- The relationship between hyperlipidemia and gallstones and the strong link between gallstones and biliary tract cancers, it is plausible that serum lipids, particularly hyperlipidemia, may be associated with biliary tract cancers.

MATERIALS AND METHODS

- A hospital based observational study conducted.
- 142 patients admitted in several dept of RDGMC, Ujjain.
- 90 Patients taken as cases, affected with biliary tract pathology. 52 patients as controls.

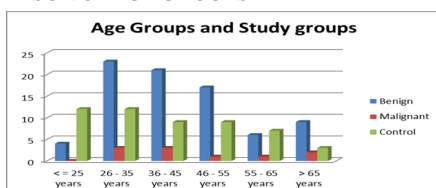
Duration of the Study : June 2018- June 2019.

INCLUSION CRITERIA:

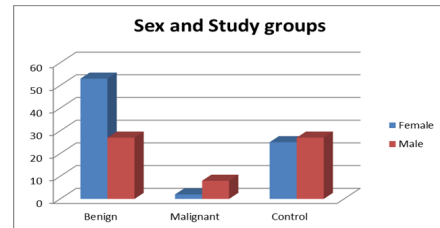
- Patients gender 18-70 years of age irrespective of their gender.
- patients with symptomatic biliary tract diseases which includes abdominal pain, vomiting, fever, jaundice.

Exclusion criteria : Patients with associated reconstructive surgeries e.g., Bilio-pancreatic diversion for morbid obesity, post hepaticojejunostomy for choledochal cysts etc.

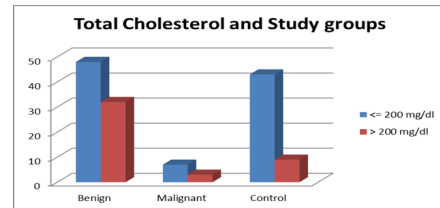
COMPARISON OF AGE GROUPS



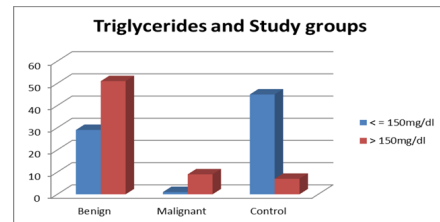
GENDER DISTRIBUTION



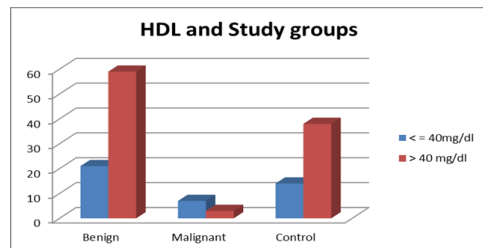
COMPARISON OF TOTAL SERUM CHOLESTEROL IN VARIOUS GROUPS



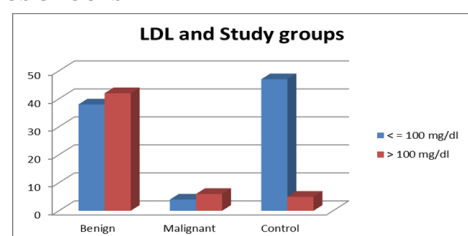
COMPARISON OF SERUM TRIGLYCERIDES IN GROUPS



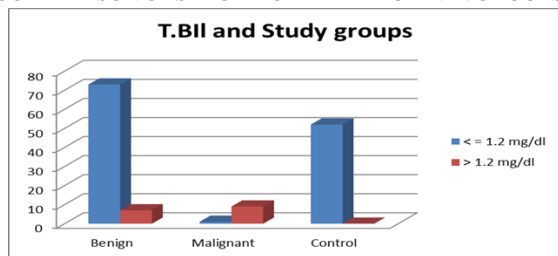
COMPARISON OF SERUM HDL CHOLESTEROL IN VARIOUS GROUPS



COMPARISON OF SERUM LDL CHOLESTEROL IN VARIOUS GROUPS



COMPARISON OF SERUM TOTAL BILIRUBIN IN GROUPS



Mean values of Serum Lipids in Benign Biliary Disease subgroup against the controls

Mean values of serum lipids in benign biliary disease subgroup					
Lipids variables	Mean	SD	95 % confidence limits		p value (Against Control)
Triglycerides N <150mg/dl	157.04	23.149	151.89	162.19	0.0000
Total Cholesterol N<200.0mg/dl	186.93	29.380	180.39	193.46	0.0095
HDL N=40-60mg/dl	45.51	8.077	43.72	47.31	0.1824
LDL N<100mg/dl	109.95	29.346	103.42	116.48	0.0000

Mean values of Serum Lipids in Malignant Biliary Disease subgroup against the controls

Lipids variables	Mea n	SD	95 % confidence limits		p value (Against Control)	p value (Against benign)
Triglyceride s N <150mg/dl	170.60	15.072	159.82	181.38	0.0000	0.0751
Total Cholesterol N<200.0mg/ dl	189.40	34.683	164.59	214.21	0.1001	0.8062
HDL N=40-60mg/dl	40.60	6.867	35.69	45.51	0.1492	0.0640
LDL N<100mg/dl	105.20	17.536	92.66	117.74	0.0000	0.6192

Inference

- The mean serum **Cholesterol** for biliary disease subgroup is 187.2mg/dl and is significantly different from the controls with a mean of 173.81mg/dl where **p value is 0.007**
- The mean serum **HDL** for biliary tract diseases cases is 44.97mg/dl, while mean value of controls is 43.75mg/dl which had a p value of 0.348, hence, making it **not** significant.
- The mean **total Bilirubin** among cases is 1.15mg/dl and that of controls is 0.88mg/dl with a **p value of 0.012** proving to be statistically significant.
- The **mean serum Triglyceride** value among the cases was 158.54mg/dl and in that of controls is 131.56mg/dl with a **p value of <0.05** making it statistically significant.
- The **mean LDL** value among the cases os 109.42mg/dl is significantly different from control population (mean LDL of 82.04 mg/dl and **p <0.05**)
- In benign biliary tract diseases, serum triglycerides, total cholesterol and serum LDL, give a statistically significant difference against the control subgroup.
- In the **malignant** biliary disease patients' lipid profile show significant **difference in Triglycerides and LDL**, with p value of <0.05 at 95% confidence limits

DISCUSSION

- There are several studies which supports this observation. Like that done by Sasi M. Parambil, Siddharth Matad, Soman K C et al conclude in their research that women are twice as likely as men to form gall stones⁵.
- Dr. Alok Chandra Prakash, Dr. Sami Toppo et al, stated that, gallstones were more common in 3rd and 4th decade, and the female

preponderance over male was in the ratio of 1:3⁶

- The serum lipid profile parameters taken under consideration like Total Cholesterol, Triglycerides, serum LDL, serum HDL and their association have been an area of conflict and interest for many studies.
- Patients in our study showed more male desposition than females when it came to malignant diseases.
- The percentage of population affected with raised levels of total cholesterol in our study was 40% when compared to an affected population which was 17.3 % and giving a p value of <0.02 making it a significant association.
- The levels of serum Triglyceride was raised in 63.5% of biliary tract diseased patients when compared to normal patients with an occurrence of 13.5%, and a p value of <0.05 giving statistically significant association.
- The percentage of raised LDL levels in affected population was 52.5% as compared to 9.6% in the control group.
- Serum HDL derangement was a more common occurrence in malignant diseased patients.
- Like, Batjoo H, Hazar NK et al showed a statistically significant result of raised LDL in gallstones affected population when compared to normal population.⁷
- Other risk factors positively associated are Obesity, Impaired glucose tolerance, and high caloric intake.
- Cholestatic disorders present with a distinct dyslipoproteinemia pattern. Biliary excretion is rich in cholesterol, phospholipids, and lecithin. Total serum cholesterol and lipid levels are usually elevated in these patients and can be associated with xanthoma formation in prolonged conditions, such as primary biliary cirrhosis.
- Altered lipid metabolism resulting from regurgitation of biliary phospholipids into serum has been implicated as a major contributor to dyslipoproteinemia in cholestatic conditions.⁸
- Various causes have been attributed for causation of gall bladder cancer out of which gall stone disease occurrence holds the most important factor. Not all people who have gall stones have a propensity of developing gall bladder cancer but approximately 85% of people with gall bladder cancer had cholelithiasis.
- Andreotti et al have reported that association of high triglycerides, low HDL and Apo A persisted after biliary stone cases with jaundice were excluded.⁹
- A recent study on Lipid profiling of cancerous and benign gall bladder tissues by ¹⁰H NMR spectroscopy by Jayalakshmi et al from India has shown alterations in various tissue lipid components in gall bladder in Chronic Cholecystitis, Xanthogranulomatous Cholecystitis and Gall bladder carcinoma.

CONCLUSION

- There is a positive correlation between raised total cholesterol, triglyceride levels and LDL cholesterol , which is statistically significant inferring that these parameters have a greater probability to be deranged in patients suffering from gall bladder and biliary tract disorders. The HDL cholesterol was found to be reduced significantly different from that of unaffected population only in the malignant biliary tract diseases.
- The aim of this study was finding the association of deranged lipid profile with the occurrence of biliary tract pathology, which would ot just help in predicting the severity and course of the disease, but act as a source for prevention of these diseases with early control of the raised lipids.

REFERENCES

- KhugrooMS, MahajanR, ZargarSA, JamiaG, Prevalance of biliary tract diseases in India.
- UnisaS, JagannathP, DhirV, KhandelwalC. Population based study to estimate prevalence and determine risk factors of Gallbladder as in Rural Gangetic Basin of North India.
- KapoorVK1, McMichaelAJ. NatlMedIndia.2003Jul-Aug;16(4):209-13.)
- Kapoor, Neelkamal, ShrivastavaandAtul. Consolidated report of population based cancer registries 2001-2004. Bhopal. Icmr2004
- SasiM. Parambil, SiddharthMatad, SomanKC. epidemiological, demographic and risk factor profile in patients harbouring various types of gallbladder calculus: a crosssectional study from a south Indian tertiary care hospital. International Surgery Journal2017Feb ;4(2):525-528
- Dr. AlokChandraPrakash, Dr.SamiToppo. Prevalence and Management of Cholelithiasis in East India, IOSR, Volume15, Issue12Ver.V(December2016)pp34-47
- Analysis of Serum Lipid Profile in Cholelithiasis Patients. BatajooH, HazraNK JNHRCVol.11No.1Issue23January2013
- Dyslipoproteinemia of LiverDisease. P.MillerJ1990, Baillieres ClinicalEndocrinology Metabolism, Vol4, p807
- Serum Lipid Levels and the Risk of Biliary Tract Cancers and Biliary Stones: A Population-based Study in China GabriellaAndreotti,1,* Jinbo Chen, 2Yu Tang Gao,3AsifRashid,IntJCancer.2008May15;122(10):2322-2329.

10. Lipid profiling of cancerous and benign gall bladder tissues byNMR spectroscopy. Jaylakshmi k,Sonkar K,BehariA,KapoorVK,SinhaN. Jhon Wiley and Sons,2010