

GALLSTONE DISEASE: A CALL TO AWARENESS IN SUBSAHARAN AFRICA



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Gallstone disease (GSD) is a major global health problem that causes high morbidity and mortality constituting a significant economic burden in developed countries (Shaffer, 2006; Stinton and Shaffer, 2012; Njeze, 2013). It was previously considered rare in sub-Saharan Africa (Stinton and Shaffer, 2012; Njeze, 2013). Its prevalence, however, is steadily rising and has already attained considerable proportions in a number of countries perhaps consequent to epidemiological and demographic transitions (Eze et al., 2016). This condition is important for several reasons – First, it is one of the most common causes of upper gastrointestinal morbidity and may mimic / be associated with gastritis, peptic ulcer disease, hiatal hernia, esophagitis, gastroesophageal reflux disease, duodenitis; acute and chronic pancreatitis, hepatitis and portal vein thrombosis among others (Sabitha et al., 2016). Secondly, it is a predisposing / risk factor for overall mortality and other diseases including various gastrointestinal cancers, non-alcoholic fatty liver disease; cardiovascular diseases (CVD) especially coronary heart, cerebrovascular, peripheral vascular diseases, arterial stiffness and heart failure (Yu et al., 2017). The risk for CVD is independent of age, gender and other comorbidities (Olaiya et al., 2013). Thirdly, patients with GSD appear to have a higher prevalence of cardiovascular risk factors such as obesity, type 2 diabetes mellitus; dyslipidemia, hyperinsulinemia, sedentary life style and gut microbiota dysbiosis (Lv et al., 2015).

There is reason for fearing potential escalation of this disease in SSA, and hence the call for awareness – Conventional and morphometric risk factors abound. The major risk factors include non-modifiable features like female gender, age, family history and genetics, geography and ethnicity; and modifiable ones like high calorie diet, dyslipidemia, diabetes mellitus, metabolic syndrome, obesity, total parenteral nutrition, rapid weight loss, drugs like thiazide diuretics, antibiotics like ceftriaxone; sickle cell disease, spinal cord injury, cystic fibrosis, Crohn's disease, liver disease and poor socioeconomic status (Stinton and Shaffer 2012; Parambil et al., 2017; Acalovschi, 2017). Among these, the key ones highly prevalent in Kenya and other SSA countries include, but are not limited to, metabolic syndrome (Kaduka et al., 2012), diabetes mellitus (Ayah et al., 2013), high calorie diet (Kigaru et al., 2015), overweight and obesity (Gichu et al., 2016). The prevalence of these conditions suggests that gall stone disease is likely to be rampant in Kenya.

Turning now to gall bladder morphometry, the article by Kariuki et al. (2017) in this issue of Anat J Afr reports a mean gall bladder volume (GBV) of 48cm³ which is way beyond 20 – 30 cm³ in contemporary literature reports (Sari et al., 2003; Adeyekun and Ukadike, 2013; Dey et al., 2016; Idris et al., 2016; Ewunomu, 2017). The variation with age is consistent with other reports (Idris et al., 2016; Yaylak, 2016) and appears in tandem with age related increase in prevalence of gall stone disease especially after 40 years (Idris et al., 2013). Secondly, GBV increases in conditions such as diabetes mellitus, obesity and dyslipidemia (Ugbaja et al., 2015). Gall bladder volume is important in functional and clinical evaluation of the gall bladder. It affects its baseline contraction index (Ugwu and Agwu, 2010), motility and post prandial emptying. It may, therefore influence the pathophysiological mechanisms of gall stone formation, presentation and mode of management. Accordingly, dilated gall bladders constitute high risk for gall stone formation (Huang et al., 2010). In this regard, assessment of its size may also constitute an important diagnostic screening tool for various disorders (Idris et al., 2016). Taken together, the interplay of non-modifiable, controllable and morphometric risk factors for GSD may conspire to drive

the condition towards epidemic proportions. Proactive action must therefore be taken to curtail the imminent rise of this disease, already epidemic in some regions of the world.

REFERENCES

1. Acalovschi M, Lammert F. 2017. Growing global burden of gallstone disease e – WGN: e – WGN Expert Point of view Articles collection.
2. Adeyekun AA, Ukadike IO. 2013. Sonographic evaluation of gall bladder dimensions in healthy adults in Benin City, Nigeria. *West Afr J Radiol*; 20: 4 – 8.
3. Ayah R, Joshi MD, Wanjiru R, Njau EK et al 2013. A population based survey of prevalence of diabetes and correlates in an urban slum community in Nairobi, Kenya. *BMC Public Health*; 13: 371.
4. Dey R, Sharma BK, Singh VK, Jha DK. 2016. Gall bladder volume in Sikkimese population. *Kathmandu Univ Med J*; 54: 144 – 147.
5. Ewunomu EO. 2017. Sonographic evaluation of gall bladder dimensions in healthy adults of a South – Eastern Nigerian population. *J Sci Innovat Res*; 5: 96 – 99.
6. Eze CU, Ezugwu EE, Ohagwu CC. 2017. Prevalence of cholelithiasis among Igbo adult subjects in Nnewi, South East Nigeria. *J Diagnostic Med Sonogr*; 33: 83 – 90.
7. Gichu M, Gichuku J, Kibachio J, Ranson J. 2016. Report on overweight and obesity among adult Kenyan women. *Afr J Midwife Women Health*; 10: 4 doi.org/10.12968/ajmw.2016.10.192.
8. Huang S – M, Yao C – C, Pan H, Hsiao K – M, Yu J – K, Lai T – J et al. 2010. Pathophysiological significance of gall bladder volume changes in gall stone diseases. *World J Gastroenterol*; 16:4341 – 4347.
9. Idris SA, Shalayel MHF, Elsiddig KE, Hamza AA, Hafiz MM. 2013. Prevalence of different types of gall stone in relation to age in Sudan. *Sch J App Med Sci*; 1: 664 – 667.
10. Idris N, Idris SK, Saleh MK, Suwaid MA, Tabari AM, Isyaku K. 2016. Sonographic measurement of fasting gall bladder volume in healthy adults in North – West Nigeria. *Niger J Basic Clin Sci*; 13: 23 – 29.
11. Kaduka LU, Kombe Y, Kenya E, Kuria E, Bore JK, Bukaria ZN et al 2012. Prevalence of metabolic syndrome among an urban population in Kenya. *Diabetes Care*; 35: 887 – 893.
12. Kariuki BN, Saidi H, Ndung'u B, Kaisha W, Ogeng'o J. 2017. Influence of age on gall bladder morphometry. *Anat J Afr*; 6: 987 – 994.
13. Njeze GE. 2013. Gall stones. *Niger J Surg*; 19: 49 – 55.
14. Olaiya MT, Chiou H – Y, Jeng J – S, Lien L – M, Hsieh F – I. 2013. Significantly increased risk of cardiovascular disease among patients with gall stone disease: A population – based cohort study. *PLoS ONE*; 8: e76448. Doi: 10.1371 / journal. pone. 0076448.
15. Parambil SM, Matad S, Soman KC. 2017. Epidemiological demographic and risk factor profile in patients harbouring various types gall bladder Calculi: a cross sectional study from a South Indian tertiary care hospital. *Int Surg J*; 4: 525 – 528.
16. Sabitha P, Ghouse M, Nagamuneiah S. 2016. Esophago gastro duodenos copy helpful to avoid unnecessary cholecystectomy. *IOSR J Dent Med Sci*; 15: 10 – 22.
17. Shabanzadeh DM, Sorensen LT, Jorgensen T. 2017. Association between screen – detected gall stone disease and cancer in a cohort study. *Gastroenterology*; 152: 1965 – 1974.
18. Shaffer EA. 2006. Epidemiology of gallbladder stone disease. *Best Practice and Research Clinical Gastroenterology*; 20: 981 – 996.
19. Stinton LM, Shaffer EA. 2012. Epidemiology of gall bladder disease: cholelithiasis and Cancer. *Gut and Liver*; 6: 172 – 187.
20. Ugbaja CA, Ayoola OO, Ikem RT, Idowu BM. 2015. Gall bladder volume and contractility in type 2 diabetes mellitus. *Afr J Diabet Med*; 23: 9 – 12.
21. Ugwu AC, Agwu KK. 2010. Ultrasound quantification of gall bladder volume to establish baseline contraction indices in healthy adults: A pilot study. *South Afr Radiog*; 48: 9 – 12.
22. Yaylak F, Deger A, Bayhan Z, Kocak C, Zeren S, Kocak FE. 2016. Histopathological gall bladder morphometric measurements in geriatric patients with symptomatic chronic cholecystitis. *Irish J Med Sci*; 185: 871 – 876.
23. Yu K – J, Zhang JR, Li Y, Huang X, Liu T, Li C et al. 2017. Gall stone disease is associated with arterial stiffness progression. *Hypertension Research*; 40: 31 – 34.