American Journal of Medicine and Medical Sciences 2024, 14(11): 3002-3005
DOI: 10.5923/j.ajmms.20241411.72

Distribution of Epidemiological Risk Factors of Cholecystitis in the Young and Middle-Aged Population of the Territories of Uzbekistan, Features of the Formed Mechanism and Prevention of the Disease in Relation to Them

Botirov J. A.[1], Mamasoliev N. S.[2], Madazimov M. M.[3], Nishonova N. A.[4]

[1]PhD, Senior Lecturer, Department of Surgical Diseases, Andijan State Medical Institute, Andijan, Uzbekistan
[2]Head of the Department of Internal Medicine, Cardiology and Emergency Medicine, Andijan State Medical Institute, Andijan, Uzbekistan
[3]Doctor of Medical Sciences, Professor, Department of General Surgery, Andijan State Medical Institute, Andijan, Uzbekistan
[4]PhD, Senior Lecturer, Department of Hospital Therapy and Endocrinology, Andijan State Medical Institute, Andijan, Uzbekistan

Abstract The authors of this literature review have analyzed the spread of epidemiological risk factors of cholecystitis in the young and middle-aged population of Uzbekistan, the mechanisms of the disease and its prevention in relation to them, showing the relevance and necessity of the topic. It can be concluded that risk factors are involved in the origin and development of chronic cholecystitis, in the young and middle-aged population, risk factors have a "large contribution". Taking them into account dramatically reduces the risk of disease or eliminates it to a certain extent. In screening - control / prevention, it should definitely be taken into account.

Keywords Low Consumption of fruit and vegetable products – LCVFP, Dyslipidemia - DLP, Chronic cholecystitis- SC, Hypercholesterolemia- HCS, Hypertriglyceridemia - HTG, Arterial pressure - AP, Arterial hypertension - AH, Systolic arterial pressure - SAP, Diastolic arterial pressure- DAP, Low level of glucose in the blood - LLGB, High level of glucose in the blood - HLGB, Type 2 diabetes mellitus - DM2

1. Introduction

Cholecystitis remains as a therapeutic, surgical problem and as an almost untapped topical issue in the "field of preventive medicine" [1,6,7]. It can be concluded that in all of the mentioned and cited literature reviews, it is evident that continuing and developing epidemiological, preventive and prognostic research and applying their results to practical activities, in the case of cholecystitis, is an urgent issue and necessity [3,4].

2. Research Object and Methods

This research is considered a simultaneous epidemiological investigation and it is based on the analysis of the results obtained in a population of 2682 people. Residents of 6 regions of the country - Andijan, Namangan, Fergana, Jizzakh, Syrdarya and Kashkadarya - were involved in the study.

Received: Nov. 1, 2024; Accepted: Nov. 23, 2024; Published: Nov. 27, 2024
Published online at http://journal.sapub.org/ajmms

"A screening examination team (therapist, cardiologist, general practitioner, ophthalmologist, surgeon, specialists in preventive medicine) was established and the scientific team was prepared for a special epidemiological investigation (qualification was increased and certificate was issued)".

The research organization system and idea was formed according to criteria and requirements developed by WHO for epidemiological investigations [WHO, 2018].

Based on the tasks set in the work, 6 simultaneous epidemiological studies were organized and carried out in the valley and oasis regions of Uzbekistan.

A detailed description of the epidemiological organization and conduct was provided: a screening group was formed, questionnaires were prepared, and the screening group was introduced to the necessary equipment for the study. At the stage of preparatory work for epidemiological screening, based on international requirements, staff were prepared for screening and training sessions were held with employees. A procedure for working with the population was created and a procedure for checking the population was developed.

3. Research Results

Prospective analyzes showed an increased risk of chronic cholecystitis (CC) under the influence of epidemiologic risk factors in the young and middle-aged population, and the prevalence rates were presented.

In low body weight, CC is determined with a prevalence of 7.5% (from 5.6% in the young population) (in the middle-aged population). Non-stone and stone types are recorded in the frequencies of 6.5% and 0.9% in the young population and 4.7% and 0.9% in the middle-aged population (RR=1.333; 95% Cl=0.479 – 3.713; ch2 =0.306; P>0.05; r=0.95). In the young population with a normal body weight, the prevalence of CC is 5.6% (non-stone type - 4.5% and stone type - 1.1%), in middle-aged people - 2.8% (stone-free type (without stones) - 1.8 % and stony type (with stones) - from 1.1%) are noted in the detection frequency (RR=1.961; 95% Cl=1.234 - 3.118; $\chi 2$=8.474? r=0.095; P<0.05). According to excess body weight (EBW), CC is 28.8% in the young population (from 22.1% in CC without stones and 6.7% in CC with stones) and in the middle-aged population - from 16.1% (observed in non-stones) (RR=1.783; 95% Cl=1.429 – 2.225; $\chi 2$=27.590? r=0.095; P<0.001).

The prevalence of CC in the young population with obesity is 21.5% (CC without stones - 14.1% and CC with stones - 7.4%); in the middle-aged population, it is recorded with a frequency of - 13.0% (of CC without stones - 8.2% and CC with stones - 4.8%) (RR=1.653; 95% Cl=1.195 - 2.287; $\chi 2$=9.523? r= 0.095; P<0.01).

Depending on the smoking status, CC in the young population is 15.7% (11.7% of stone-free type and 8.0% of stone type) and 8.9% of middle-aged population (6.2% of stone-free type and 8.0% of stone type – from 2.8%) is determined by the frequency of distribution (RR=1.758; 95% Cl=1.479 – 2.091; $\chi 2$=42.321? r=0.225; P<0.001).

In general, the frequency of confirmation of CC in the young population without smoking is 0.5% (stone-free type - 12.5% and stone-type - 0.5%) and in the middle-aged population - 7.3% (stone-free CC - 5.5% and stony CC – 1.7%) make up the distribution frequency (RR=1.791; 95% Cl=1.347 – 2.381; $\chi 2$=16.715? r=0.225; P<0.001). Depending on the status of "every day smoking", CC in the young population - 17.0% (CC without stones - 10.4% and CC with stones - 6.6%) and in the middle-aged population - from 12.9% (CC without stones - 9, 3% and CC with stones – from 3.5%) are noted in frequencies (RR=1.316; 95% Cl=1.033 – 1.678; $\chi 2$=4.976? r=0.225; P<0.05).

The prevalence of CC in the young population "smoking sometimes" is 20.4% (non-stone type - 12.8% and the stone type - 7.7%) and in the "Middle-aged population" - 4.2% (stone -free type - 0.3% and stony type - 3.8%) are observed with levels (RR=4.923; 95% Cl=2.769 - 8.758; $\chi 2$=38.517? r=0.225; P<0.001). Smoking habit causes 1.8 times more risk of developing CC in the young population and it is undoubtedly confirmed as one of the main risk factors of the disease. A similar correlation is confirmed between physical activity status and CC.

The prevalence of CC in the young population with a physically inactive (hypodynamia) condition is 45.2% (CC without stones – 30.2% and CC with stones – 15.1%). The frequency of detection of the disease in middle-aged people is observed with an indicator of 14.3% (non-stone type - 9.5% and stone type - 4.8%) (RR=3.167; 95% Cl=1.981 - 5.061; $\chi 2$=28.873? r= 0.033; P<0.001). On the contrary, in the young population with a high level of physical activity - 2.3% and in the middle-aged population - 1.6% (including CC without stones and stones - 1.6% and 0.6% and -1.0% and 0.6 in accordance with %) detection is recorded in frequencies, that is, with extremely low indicators (RR=1.385; 95% Cl=0.683 – 2.807; $\chi 2$=0.822? r=0.033; P>0.05). The level of physical activity in the average young population is CC – 15.5% (non-stone type – 13.0% and stone type – 2.5%) and in the middle-aged population – 9.1% (stone-free type – 5.6% and stone type type – from 3.5%) is noted (RR=1.692; 95% Cl=1.226 – 2.336; $\chi 2$=10.556? r=0.033; P<0.05). The frequency of detection of CC in the young population with a low level of physical activity is 29.4% (non-stone type - 21.5% and stone type - 8.1%); in the middle-aged population, the disease is 18.5% (non-stone type - 14.0% and stone type - 4.7% with detection frequency) (RR=1.568; 95% Cl=1.251 - 1.966).

15%, 7% (non-stone type - 11.7% and stone type - 4.0%) and 8.9% (non-stone type - 6) in the young and middle-aged population due to alcohol consumption (AC) .2% and the stony type – from 2.8%) is confirmed in the prevalence of CC (RR=1.758; 95% Cl=1.479 – 2.091; $\chi 2$=42.321? r=0.127; P<0.001).

The frequency of detection of CC in the young population with an AI of more than 20 g per day was -46.9% (from CC without stones - 29.6% and XS with stones - 17.3%) and in the middle-aged population - 24.7% (CC without stones - 9.9% and rocky XS-14.8%) (RR=1,900; 95% Cl=1,217 – 2,9; $\chi 2$=8,702? r=0,127; P<0,05). "No AC" in the young population CC with a prevalence of 14.8% (non-stone type -11.1% stone type -3.7%) and in the middle-aged population – with a detection frequency of 8.0% (non-stone type - 5.9 % and stony type – from 2.1%) were recorded (RR=1.851; 95% Cl=1.492 – 2.296; $\chi 2$=32.686? r=0.127; P<0.001). CC in the young and middle-aged population with "AC in the last week" is 12.8% (from 9.8% of the non-stone type and 3.0% of the stone type) and 11.8% of the middle-aged population (from the non-stone type - 7.9% and stone type from 3.9%) is confirmed by frequencies (RR=1.083; 95% Cl=0.709 - 1.656; $\chi 2$=0.137? r=0.127; P>0.05).

"There is AC within 10 months" is characterized by the frequency of detection of CC in the young population - 26.4% (CC without stones - 22.6% and CC with stones - 3.8%). These indicators are recorded in the middle age population - 12.3%, 9.4% and 1.9% (RR=2.333; 95% Cl=0.970 - 5.010; $\chi 2$=3.944? r=0.127; P>0, 05).

Such analyzes were also carried out in the population "having AC in the last 12 months": 1) in the young population, CC is observed with a prevalence of 8.1%, and its stoneless and stone types are confirmed by 7.4% and 0.7%; 2) the

frequency of detection of CC in the middle-aged population is 1.5%, and its non-stone and stone types are observed from 1.5% and 0.00% (RR=5,500; 95% Cl=1,242 – 24,350; ch2=6,544 ; r=0.127; P<0.05).

These results generally confirm the results obtained in foreign studies, but are characterized by a relatively low level [2,5].

In the young population with LAVC (□400g / milk), CC – at a prevalence of 14.5% (from CC without stones – 10.4% and cholecystitis with stones – from 4.1%) and with a detection frequency of 7.3% (CC without stones – 4, 6% and stony CC – from 2.7%) are noted (RR=1.977; 95% Cl=1.395 – 2.801; $\chi2$=15.464? r=0.070; P>0.05).

In the case of not eating fruits and vegetables every day, CC occurs at a frequency of 20.0% in the young population (from 14.9% of stone-free type and 5.1% from stone-free type) and from 10.2% of the middle-aged population (from stone-free type - 7.0% and stone type - from 3.2%) is confirmed by frequency (RR=1.955; 95% Cl=1.542 - 2.479; $\chi2$=32.357? r=0.070; P<0.001). In the young population defined by the consumption of fruits and vegetables in the amount of ≥400 g/day, CC is 10.0% (from CC without stones - 8.0% and CC with stones - 2.0%) and in the middle-aged population - 8.6% (of CC without stones – 6.5% and SS with stones – 2.0%) is confirmed in the distribution frequency (RR=1.174; 95% Cl=0.807 – 1.707; $\chi2$=0.706? r=0.070; P>0.05).

Low fruit-vegetable consumption (LAVC), analysis reported, increases the risk of CC by 1.5 times, especially in the young population. The risk and prevalence of CC are characterized by lipid metabolism disorders. The frequency of detection of CC in the young population with dyslipidemia (DLP) is 16.1%, including CC without stones - 16.4% and CC with stones - 6.1%. In the middle-aged population with DLP, the incidence of the disease is 14.2% (9.7% of CC without stones and 4.1% of CC with stones) (RR=1.133; 95% Cl=0.958 - 1.340; $\chi2$=2.131?r=0.130; P>0.05).

In the group of young people with hypercholesterolemia (HCS), CC - 23.7% (non-stone type - 17.7%; and stone type - 6.0%) and 14.4% (stone-free type - 10.8% and stone type -3.6%) is expressed in confirmation frequencies (RR=1.648; 95% Cl=1.302 – 2.087; $\chi2$=17.847? r=0.130; P<0.001). Hypertriglyceridemia (HTH) is observed in the prevalence of CC -21.7% in the young population (CC without stones - 15.6% and CC with stones - 6.2%) and in the middle-aged population - 14.0% (RR=1.551; 95% Cl=1.266 – 1.901; $\chi2$=18.416; P<0.001).

It was found that, due to various changes in arterial pressure (AP), in the young population, CC – 15.7% (CC without stones – 11.7% and CC with stones – 4.0%) and in the middle-aged population – from 8.9% (it is characterized by detection in frequencies of CC without stones – 6.2% and CC with stones – 2.8%) (RR=1.758; 95% Cl=1.479 – 2.091; $\chi2$=42.321? r=0.054; P<0.001). The prevalence of CC in the young population with "Optimal AP" (AP<120/80 mm Hg.) is 11.1% (non-stone type - 9.0% and stone type - 2.1%) and in the middle-aged population - 4.2% (non-stone type - 3.3% and stone type - 1.0%) (RR=2.636; 95% Cl=1.639 - 4.242; $\chi2$=17.542? r=0.054; P<0.001).

From -4.8% in the young population with "Normal AP" (AP 120-129/80-84 mm Hg.) (5.2% and 2.0% and 3.1% and 1 .7%) is described and confirmed in detection frequencies (RR=1.486; 95% Cl=0.992 – 2.228; $\chi2$=3.747? r=0.054; P>0.05). "With prehypertension" (AP 130-139/85-89) CC in the young population - 33.7% (from CC without stones - 25.1% and CC with stones - 8.6%) and in the middle-aged population - 18.2% (CC without stones – 12.7% and CC with stones – 5.5%) are recorded with detection frequency (RR=1.848; 95% Cl=1.423 – 2.401; $\chi2$=22.532? r=0.054; P<0.001).

Arterial hypertension (AH) "with AH" (AP ≥ 140/90 mm Hg) in the young population - 15.7% (non-stone type - 17.8% and stone type -7.0%) and in the middle-aged population and -16.3% (from stoneless type - 11.4% and stoned type - 5.4%) is confirmed in detection frequencies (RR=1.472; 95% Cl=1.077 - 2.011; $\chi2$=6.023? r=0.054; P< 0.05). "Systolic AH" (AP: systolic arterial pressure (SAP)>140 and diastolic arterial pressure (DAP) - □90 mm Hg) did not reveal the incidence of CC in the young and middle-aged population.

The description of the origin of chronic cholecystitis due to various disorders of carbohydrate metabolism (pregnancy glucose in the blood less than 5.6 mm/l (PGBlM) or higher (PGBhM), diabetes mellitus DM2) is given. It was observed that in the young population with PGBlM, CC was expressed in 15.3% (non-stone type - 11.7% and stone type - 3.7%) and in the middle-aged population - 8.5% (stone-free type - 6.0% and stony type - from 2.5%) (RR=1.803; 95% Cl=1.480 - 2.196; $\chi2$=35.774? r=0.064; P<0.001). In the age group of the PGBhM confirmed population, the frequency of detection of CC is 17.1%, non-stone type - 11.9%, and stone type - 5.2%.

In the middle-aged population, the frequency of detection of CC is 10.6%, with confirmed PGBlM. It is confirmed in prevalence frequencies of CC without stones – 11.9% and CC with stones – 3.5% (RR=1.609; 95% Cl=1.119 – 2.315; $\chi2$=6.781? r=0.065; P<0.01). The rate of detection of CC in the young population with confirmed diabetes mellitus (DM2) is 16.2% (of the type without stones - 11.5% and the type with stones - 4.7%) and in the middle-aged population - 13.5% (non-stone type – 9.5% and stone type – 4.1%) (RR= 1.200; 95% Cl=0.694 – 2.076; $\chi2$=0.427? r=0.616; P>0.05).

4. Conclusions

It can be concluded that risk factors are involved in the origin and development of CC, in the young and middle-aged population, risk factors with "large contributions". Taking them into account dramatically reduces the risk of disease or eliminates it to a certain extent. Screening - control / prevention should definitely take this into account.

REFERENCES

[1] Karimov Sh.I. Minimally invasive methods in the treatment

of acute cholecystitis in patients with increased surgical risk // Endoscopic surgery. – 2003. - No. 6. – p. 35.

[2] Kukosh M.V., Vlasov A.P. Acute cholecystitis. Moscow: Science. – 2009; pp. 301 – 307.

[3] Mamasoliev Z.N. Features of the prevalence, development and prevention of glaucoma in the elderly and gerontic age // Abstract of the dissertation of Doctor of Medical Sciences (DSc). - Andijan. 2023. – pp. 55-56.

[4] Khakimova Z.K. Epidemiology, risk factors and innovative aspects of the prevention of diseases of the organ of vision in centenarians in the conditions of Uzbekistan // Abstract of the dissertation of Doctor of Medical Sciences (DsC). Andijan. – 2024. – pp. 45-46.

[5] Chadayev A.P. Diagnosis and treatment of acute cholecystitis [Electronic resource]. – Access mode: www.I vrach.ru/ 1999/08/4528165.

[6] Thornguist B., Vaage A., Zheng E.V., Nilsson M. The severity of acute cholecystitis and the risk of iatrogenic bile duct damage during cholecystectomy, population study “case - control” // Worid J Surg. 2016; 40:1060:5. DOI: 10.1007/ S00268-015-3365-1. [Pub Med] [Cross Rey] [Google Scholar].

[7] Zhumatayev D.T., BaimaKhanov A.N., AbdyKadyrov M.K. et al. Simultancous surgical treatment tactics of acute destructive cholecystitis combined with choledochlithiasis: A case report. int J Surg Case Rep. – 2020; 70: 231-232. doi:10.1016.j.ijscr. 2020.04.081. Epub 2020 May 12. PMID: 32422585 Frec PMC article.