



A Case Control Study On Risk Factors Of Acute Pancreatitis

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ABSTRACT

The present study is intended to identify the risk factors of acute pancreatitis among patients attending Medical College Hospital, Thiruvananthapuram based on a case control model. The present study was conducted among patients attending the Inpatient and Outpatient Departments of Surgery, Medical College Hospital, Thiruvananthapuram. The cases were the patients aged between 20- 70 years with acute pancreatitis characterized by serum lipase levels elevated above 180 IU /L and hypoechogenicity of the pancreas in ultrasonography, and the controls were patients aged between 20 - 70 years without acute pancreatitis having normal serum lipase levels and isoechogenicity of the pancreas in ultrasonography, attending Department of Surgery in Medical College Hospital, Thiruvananthapuram. The sample consisted of 100 cases and 100 controls. The data were collected for a period of six weeks. It is found that alcoholism, gallstones, infections, intake of fatty foods and fried foods were the major risk factors for Acute Pancreatitis among patients attending Medical College Hospital, Thiruvananthapuram.

KEYWORDS : acute pancreatitis, alcoholic pancreatitis, gall stone pancreatitis

Introduction

The pancreas is an important organ in our body. It plays a dual role, an exocrine function that helps in digestion and an endocrine function that regulates blood glucose level¹.

Acute pancreatitis (AP) is an inflammation of the pancreas caused by autodigestion of the gland, by its own enzymes. It includes a broad spectrum of pancreatic diseases, which vary from parenchymal edema to necrosis. The clinical course of an episode of acute pancreatitis varies from a mild-transitory form to a severe necrotizing form characterized by multisystem organ failure and mortality in 20-40% of cases². Preventing the risk factors of pancreatitis in the budding stage itself assumes to be great significance and can lead to tremendous savings in terms of money, health and life.

The acute pancreatitis is a common medical condition requiring emergent care. Even today with technical advantage in medical and surgical field acute pancreatitis remains a major cause of morbidity and mortality³.

Many studies of trends in the incidence of acute pancreatitis have suggested that the numbers has been increased by a factor of ten in the past three decades^{3,4}.

The Indian Pancreatitis Study Group was conceived at a National Consensus Meeting on Pancreatitis in India, 2006 reports that Southern areas shows more incidence of pancreatic diseases in India⁵.

Acute pancreatitis related to alcohol or biliary stones in 80 % of the cases. The remaining 10% is related to metabolic factors, drugs and other conditions and 10% are idiopathic.

Aim of the study

1. To identify the risk factors of acute pancreatitis.

Methodology

The study was conducted among patients attending the Inpatient and Outpatient Departments of Surgery, Medical College Hospital, Thiruvananthapuram.

The cases were the patients aged between 20- 70 years with acute pancreatitis characterized by serum lipase levels elevated above 180 IU /L and hypoechogenicity of the pancreas in ultrasonography, and the controls were patients aged between 20 - 70 years without acute pancreatitis having normal serum lipase levels and isoechogenicity of the pancreas in ultrasonography, attending Department of Surgery in Medical College Hospital, Thiruvananthapuram.

The sample consisted of 100 cases and 100 controls. The data were collected for a period of six weeks. Sampling technique used for the study was consecutive sampling. Semi structured interview schedule was used for data collection. The data collected were analysed using descriptive and inferential statistical techniques.

Results

A. Socio demographic data

1. 34% of the cases and 29 % of the controls were in the age group of 31 – 40 years. 29% of the cases and controls were in the age group of 41- 50 years. ($p > 0.05$).

2. Majority of cases (85%) and controls (76%) were males compared to females among cases(15%) and controls (24%),69

3. 67% of the cases and 51 % of the controls belongs to BPL category. 33% of cases and 49 % of the controls belongs to APL category.($P < 0.05$).

4. 71% of the cases and 57% of the controls were from rural area. ($P < 0.05$)

5. 57% of the controls had an education equal to or more than higher secondary school, whereas 73% of the cases had an education less than higher secondary school. 6. 67% of the cases and 54% of the controls were manual labours.5% of the cases and 13% of the controls were government employees.

B. Clinical data

1. 81% of the cases and 94% of the controls had normal body weight.19% of

cases and 6% of the controls had overweight.

2. Average serum lipase level of cases was 1311.0 ± 459.6 IU / L and that of controls was 47.6 ± 10.8 IU / L

3. Average serum triglyceride level of the cases were 157.9 ± 25 mg /DL and that of controls were 139.0 ± 13.6 mg/dL.

4. 80% of the cases have hypoechogenicity of the pancreas and the 20% have both hypoechogenicity of the pancreas and gallstones, whereas the 93% of the controls have isoechogenicity of the pancreas and the 7% have both the isoechogenicity and gallstones in the ultrasonography report.

C. Risk factors of acute pancreatitis

Variables	B	S.E.	p	OR	95% C.I. for OR	
					Lower	Upper
BMI	.746	.832	.370	2.108	.413	10.759
Place of residence	1.291	.507	.011	3.637	1.346	9.826
Income	.186	.470	.692	1.205	.480	3.027
Education	.593	.165	.000	1.809	1.310	2.498
Occupation	.290	.556	.602	1.337	.450	3.974
Alcohol drinking	.760	.541	.040	2.137	.740	6.169
Gallstones	1.562	.498	.026	3.016	1.243	8.019
Infections	2.140	.516	.000	8.503	3.095	23.363
Smoking	.600	.482	.213	1.822	.708	4.687
Tapioca	.819	.514	.111	2.269	.828	6.216
Fatty foods	2.018	.519	.000	7.524	2.722	20.793
Fried foods	1.563	.476	.001	4.775	1.880	12.132
Triglyceride	1.223	.493	.013	3.396	1.292	8.926
Constant	-22.454	3.833	.000	.000		

Table 1- Significant risk factors of acute pancreatitis after binary logistic regression

1. 78% of the cases and 62% of the controls used alcohol. The study results shows that there is statistically significant association between alcoholism and acute pancreatitis at an odds ratio of 2.173.

2. 48.7% of the cases and 38.71% of the controls used rum, 24.35% of the cases and 1.61% of the controls used both rum and whisky. The study results shows that there is statistically significant association between type of alcohol and acute pancreatitis.

3. Majority of the cases (80.76%) were consuming alcohol for more than a period of five years, whereas only 32.25% of the controls were consuming alcohol for a similar period. There is statistically significant association between duration of alcoholism and the incidence of acute pancreatitis. (p < 0.050).

4. 37.18% of the cases and 1.61% of the controls were in the habit of consuming alcohol daily. There is statistically significant association between frequency of alcohol intake and the incidence of acute pancreatitis (p < 0.050).

5. 93.58% of the cases consumed alcohol more than 300 mg daily, whereas only 14.51% of the controls were in the habit of consuming alcohol more than 300mg daily. There is statistically

significant association between amount of alcohol intake and the incidence of acute pancreatitis (p < 0.050).

6. 20% of the cases and 7% of the controls had gallstones. The study results shows that there is statistically significant association between gallstones and acute pancreatitis at an odds ratio of 3.321.

7. 55% of the cases and 27% of the controls had serum triglyceride level more than 150 mg/dl. The study results shows that there is statistically significant association between serum triglyceride level and acute pancreatitis at an odds ratio of 3.305.

8. 13% of the cases and 5% of the controls had diabetes mellitus. There is no statistically significant association between history of diabetes mellitus and the incidence of acute pancreatitis (p > 0.05).

9. 6% of cases and 1% of controls had history of consumption of Antidepressants. Therefore there is no statistically significant association between Antidepressants and the incidence of acute pancreatitis (p > 0.05).

10. 11% of cases and 5% of controls had history of consumption of Oral Hypoglycaemic Agents. There is no statistically significant association between Oral Hypoglycaemic Agents and the incidence of acute pancreatitis. (p > 0.05).

11. 21% of cases and 10% of controls had history of consumption of steroids. There is no statistically significant association between steroids and the incidence of acute pancreatitis (p > 0.05).

12. 3% of the cases and 1% of controls underwent dialysis. There is no statistically significant association between history of previous surgeries and procedures and the incidence of acute pancreatitis (p > 0.05).

13. 17% of the cases and 8% of the controls had chicken pox. 12% of the cases and 7% of the controls had hepatitis. 15% of the cases and 6% of the controls had dengue fever. There is statistically significant association between infections and the incidence of acute pancreatitis. (p < 0.050)

14. 60% of the cases and 33% of the controls had habit of smoking. The study results shows that there is statistically significant association between smoking and acute pancreatitis at an odds ratio of 3.045.

15. 91.6% of the cases were smoking more than a period of 5 years, whereas 28.6% of the controls were smoking for the same period. The study results shows that there is statistically significant association between duration of smoking and acute pancreatitis (p < 0.050).

16. 60% of the cases and 21.21% of the controls used more than 10 cigarettes per day. There is statistically significant association between number of cigarettes used and the incidence of acute pancreatitis. (p < 0.050)

17. 54% of the case and 33% of the controls used tapioca 1-3 days per week. 54% of the case and 33% of the controls used tapioca 1-3 days per week. There is statistically significant association between frequency of intake of tapioca and the incidence of acute pancreatitis. (p < 0.050)

18. 61% of the cases used fatty foods 1-3 days per week, whereas only 26% of the controls used fatty foods 1-3 days per week. There is statistically significant association between frequency of intake of fatty foods and the incidence of acute pancreatitis. (p < 0.050)

19. 52% of the cases used fried foods 1-3 days per week, whereas only 22% of the controls used fried foods 1-3 days per week. 16% of the cases used fried foods 4-6 days per week. There is statistically significant association between frequency of intake of fried foods and the incidence of acute pancreatitis. (p < 0.050). It is found that

alcoholism, gallstones, hypertriglyceridemia, infections, fatty foods, fried foods are the significant risk factors for Acute Pancreatitis among patients attending Medical College Hospital, Thiruvananthapuram.

Discussion

Acute Pancreatitis is a growing public health problem. Increased incidence of the disease occurs as a result of increase in the consumption of alcohol and obesity. The present study has identified the risk factors of Acute Pancreatitis among patients attending Medical College Hospital, Thiruvananthapuram.

100 cases and 100 controls were investigated and findings can be used to focus on the areas requiring improvement.

Demographic data of the cases revealed that 63% of the cases were between the age group of 30-50 years.

The median age for occurrence of the disease was 40 years.

In the present study, more than 50% of the cases were males. The study on recent trends in acute pancreatitis by Keyur Surati et al, also supports this data.

The present study showed that 78% due to alcoholism and 20% due to gallstones. This study supported by the study findings of Anderson. F, in a regional hospital in South Africa. It stated that episodes of pancreatitis were associated with alcohol consumption in 62% of cases and with gallstones in 14%; 4% of cases were associated with both gallstones and alcohol consumption, 8% with dyslipidaemia and 5% with retroviral disease.

The present study results revealed that 80.76% of the cases uses alcohol more than a period of five years with weekly intake of more than 210gm of alcohol. The average intake of alcohol in a day ranges from 30gm to 150 gm. This findings are supported by the findings of Irwings, that the risk of developing pancreatitis increases with increasing doses of alcohol and the average of alcohol consumption vary since 80 to 150 g/d for 10-15 years.

Conclusion

Demographic data of the cases revealed that 63% of the cases were between 30- 50 years. Majority (89%) of the cases were males. Majority (71%) of cases were from rural area. Majority (73%) of the cases had an education less than higher secondary school. Majority (67%) of the cases were manual labours. There was statistically significant association seen with intake of alcohol between cases and controls.

A statistically significant association seen with amount and duration of alcohol intake between cases and controls. A statistically significant association seen with alcoholism, gallstones, serum triglyceride level between cases and controls.

A statistically significant association seen with infections between cases and controls. There was no statistically significant association seen with previous surgeries and procedures, drugs and diabetes mellitus. between cases and controls. A statistically significant association seen with BMI, smoking between cases and controls. A statistically significant association duration and amount of alcoholism between cases and control. A statistically significant association seen with frequency of intake of tapioca, frequency of fatty foods and fried food items between cases and controls. It is found that alcoholism, gallstones, infections, smoking, serum triglycerides, tapioca, fatty and fried foods were the major risk factors for Acute Pancreatitis in univariate analysis. It is found that alcoholism, gallstones, hypertriglyceridemia, infections, increased intake of fatty foods and fried foods were the major risk factors for developing acute pancreatitis among patients attending medical college hospital through binary logistic regression.

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