Gallbladder calls the S.H.O.T.S

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Introduction

In the United States, on average, a little over 300,000 patients present to the Emergency Department for symptomatic cholelithiasis annually.

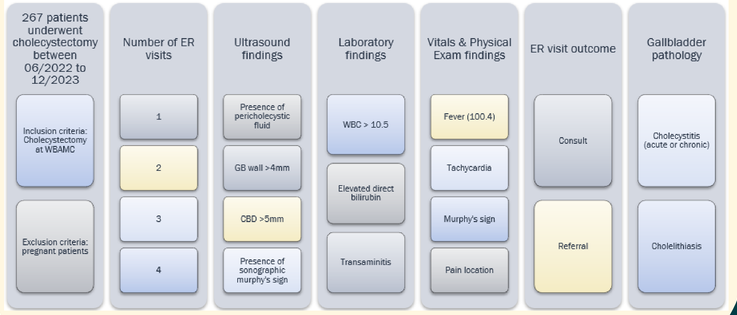
There have been a handful of studies published between 2015 to 2023 looking at data in three different states, Canada and Australia analyzing costs and clinical outcomes. A study done in Canada demonstrated ER physician point of care biliary ultrasound is associated with shorter ER visits. A collaborated quality improvement study between the Emergency Medicine Department and Surgery Department conducted in Banner-University of Arizona demonstrated improve workflow, such as shorter ER length of stay and reduced hospital length of stay.

Whether these presentations resulted in a General Surgery consult or referral, repeat ER visits or subsequent development of biliary disease complication have not been extensively studied. The purpose of this study is to review the patterns of management of biliary disease in the Emergency Department of a military treatment facility with a general surgery residency.

Methods

This is a retrospective observational study using EMR to look at laparoscopic cholecystectomies performed at this institution

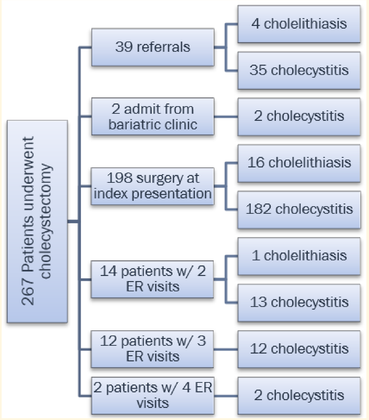
Data was collected from Genesis by first obtaining all cholecystectomies performed followed by chart review and variable extractions



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			# ER Visits
Spearman's rho	# ER Visits	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	267
	Pericholecystic fluid	Correlation Coefficient	-.116
		Sig. (2-tailed)	.064
		N	255
	GB wall >4mm	Correlation Coefficient	-.095
		Sig. (2-tailed)	.131
		N	256
	CBD > 5mm	Correlation Coefficient	-.035
		Sig. (2-tailed)	.584
		N	253
	Sonographic Murphy's	Correlation Coefficient	-.058
		Sig. (2-tailed)	.369
		N	246
	WBC >10.5	Correlation Coefficient	.005
		Sig. (2-tailed)	.933
		N	245
	Elevated D bili	Correlation Coefficient	-.043
		Sig. (2-tailed)	.507
		N	240
	Transaminitis	Correlation Coefficient	-.026
		Sig. (2-tailed)	.687
		N	244
	Fever (100.4)	Correlation Coefficient	-.005
		Sig. (2-tailed)	.932
		N	263
	Tachy	Correlation Coefficient	.167**
		Sig. (2-tailed)	.007
		N	263
	Murphy's	Correlation Coefficient	.099
		Sig. (2-tailed)	.115
		N	254

			# ER Visits	Cholecystitis (binary)
Spearman's rho	# ER Visits	Correlation Coefficient	1.000	.002
		Sig. (2-tailed)	.	.977
		N	267	267
	Cholecystitis (binary)	Correlation Coefficient	.002	1.000
		Sig. (2-tailed)	.977	.
		N	267	267



Variable Type	Variable	Fisher's Exact Test	Significance
Ultrasound	Pericholecystic Fluid	32.318	<.001*
	GB wall > 4mm	19.535	.002*
	CBD > 5mm	28.721	<.001*
	Sonographic Murphy's	20.347	.001*
Laboratory	WBC > 10.5	35.026	<.001*
	Elevated D bili	26.987	<.001*
	Transaminitis	24.038	<.001*
Physical Exam	Tachy	1.835	.578
	Murphy's	65.132	<.001*

Results and Discussion

The number of ER visits ranged between 0-4 where 0 in situations where patient was being evaluated in the general surgery clinic for other reasons and endorsed symptoms of biliary disease . With that in mind, we asked our statistician to evaluate for correlation between number of visits and cholecystitis. Given the data is not normally distributed a spearman's Rho correlation was performed demonstrating no correlation between the number of ER visits & cholecystitis.

In looking at the different variables and its correlation, Spearman's rank correlation was computed to assess the relation between lab/ultrasound/physical exam findings with number of ER visits and among all the variables, only tachycardia demonstrated a significant positive correlation with number of visits. Of the different variables assessed transaminitis was the most prevalent findings among all patients. Fisher's Exact Test performed given evaluating relationship between categorical variables ; Fisher's exact test is used to study association between qualitative variables

Although tachycardia demonstrated a significant relationship with number of ER visits, it has no significant relationship on whether patient received a general surgery consult or general surgery clinic referral.

This makes sense as tachycardia may often be felt as palpitations and given the worry for cardiac related issues, patients are more likely to present to the ER

Additionally, tachycardia is a finding with an exponential variety of causes thus not every tachycardic patient warrants surgical evaluation.

Conclusions

Although there are no correlation between the number of ER visits & cholecystitis; our patients should not be visiting the ER with the same chief complaints upward to 4 times. There are many variables that are statistically significant to result in a consult or referral placed.

Study limitations: single institution, small sample size, number of visits does not account for hour of each visit and cholecystitis was not delineated between acute vs. chronic.

Future directions: Once patterns have been identified, the specific aim is to create a quality improvement workflow and partnership between to the two departments to provide satisfactory patient care that is both high in quality and efficiency. This project is to lay the groundwork for future studies As previously mentioned, a collaborated quality improvement study between the Emergency Medicine Department and Surgery Department conducted in Banner-University of Arizona demonstrated improve workflow, such as shorter ER length of stay and reduced hospital length of stay

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