Incidence of Abnormal Preoperative Blood Testing and Postoperative Complication in Appendectomy Patients in Siriraj Hospital

Pensiri Srishewachart MD*,
Sompol Narksut MD*

** Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand*

Background: *Acute appendicitis is a common emergency surgical problem. Pre-operative complete blood count and urinalysis are used for supporting diagnosis. Blood chemistry is also requested for patient's status evaluation despite limited evidence of its cost-effectiveness.*

Objective: *The primary objective was to determine the incidence of abnormal pre-operative blood chemistry result. The secondary objectives were the relationship between preoperative abnormal blood chemistry and postoperative complication and to find the risk factors of abnormal blood chemistry.*

Material and Method: *450 patients underwent emergency appendectomy at Siriraj Hospital from January 1st, 2012 to March 31st, 2014 were included in this retrospective descriptive study. Demographic data, blood chemistry test result and postoperative complication were recorded. The incidence of abnormal blood chemistry results was reported. Relationship between abnormal laboratory results, postoperative complications and predisposing factors were analyzed.*

Results: *The incidence of abnormal pre-operative serum BUN, creatinine, sodium, potassium, bicarbonate and chloride were 19.1%, 35.4%, 26%, 24%, 32.9% and 24.3%, respectively. Abnormal blood chemistry results were not associated with postoperative complications. However, ASA physical status equal or more than 3 and duration of symptoms >48 hours are significantly associated with postoperative complications (adjusted OR 2.91, 95% CI 1.04-8.13, p-value = 0.041 and adjusted OR 2.78, 95% CI 1.24-6.25, p-value = 0.013, respectively). The predisposing factors of abnormal blood chemistry are ASA physical status equal or more than 3 (adjusted odd ratio 4.27, 95% CI 1.25-14.65, p-value = 0.021) and duration of symptoms >48 hours (adjusted odd ratio 1.79, 95% CI 1.01-3.20, p-value = 0.047).*

Conclusion: *There was no association between abnormal blood chemistry result and postoperative complication. Preoperative blood chemistry should be tested only if indicated.*

Keywords: *Preoperative tests, Postoperative complication, Appendectomy, Risk factors*

J Med Assoc Thai 2016; 99 (5): 517-24
Full text. e-Journal: *http://www.jmatonline.com*

Acute appendicitis is one of the common emergency surgical problems in all age groups. The preoperative investigations may include complete blood count (CBC), inflammatory markers, urinalysis (UA), urine pregnancy test (UPT) and liver function test (LFT). The objective of these investigations is to supporting diagnosis[1,2]. Whereas blood chemistry tests were also requested by surgeons, primary care physicians or anesthesiologists to evaluate pre-operative patient's status and sometimes, predictors for perioperative adverse event. There were many studies which indicated that pre-operative investigations should be based on information guided by thorough history taking and physical examination. The conclusion from previous systematic review shows no evidence derived from high-quality studies that support routine pre-operative testing in healthy adults undergoing elective non-cardiac surgery[3-6].

Testing according to pathological findings in a patient's medical history or physical examination seems justified, although the evidence is scarce. More study is needed to explore the effectiveness of indicated pre-operative testing.

Correspondence to:
Srishewachart P, Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, 2 Wanglang Road, Bangkok Noi, Bangkok 10700, Thailand.
Phone: +66-2-4197995, Fax: +66-2-4113256
E-mail: pensiri.srs@gmail.com

Material and Method

After approval by Siriraj Institutional Review Board (Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand) 450 patients underwent

emergency appendectomy at Siriraj Hospital from January 1st, 2012 to March 31st, 2014 were included in this retrospective descriptive study.

In every patient, demographic data including age, sex, body mass index (BMI), underlying disease, ASA physical status, clinical symptoms such as fever, abdominal pain, nausea, vomiting, diarrhea were recorded. Blood chemistry test results which were blood urea nitrogen (BUN), serum creatinine, serum electrolytes (sodium, potassium, chloride, bicarbonate) were accessed. Postoperative neurologic, cardiac, renal, pulmonary, gastrointestinal, and thromboembolic complication as well as, wound infection, and reoperation were also recorded. The incidence of abnormal blood chemistry result was reported. Relationship between abnormal laboratory results, postoperative complications and predisposing factors were analyzed.

The primary objective was the incidence of pre-operative abnormal blood chemistry result. The secondary objectives were the relationship between pre-operative abnormal blood chemistry and postoperative complication and the risk factors of abnormal blood chemistry.

Sample size was calculated by estimating the incidence of abnormal blood chemistry result from the previous study equal to 7.97%[7] and given the probability of Type I error was 0.05 and the allowable error in estimating incidence (margin of error) was 30%. Data analysis was performed by using PASW Statistics (SPSS) 18.0 software (SPSS Inc., Chicago, IL, United States). The result indicated that we need 450 cases of appendectomy to be enrolled in this study.

The descriptive statistics were used for analyzed demographic data. The abnormal blood chemistry was presented as number, percentage and 95% confidence interval. The Chi-square test and multiple logistic regression were used for comparison of abnormal blood chemistry and postoperative complication, and comparison of patients' factor and abnormal blood chemistry result. A *p*-value of less than 0.05 was considered statistically significant.

Results

Four hundred and fifty patients underwent emergency appendectomy during January 1st, 2012 to March 31st, 2014 were enrolled in this study. The mean age was 43 years old and most of them were in age group 20-45 years (n = 153, 34%). The mean BMI was 23 kg/m^2. 37.8% of the patients had BMI more than 25 kg/m^2. Half of patients enrolled were categorized in ASA physical status 1 (n = 229, 50.9%), the others were classified as ASA PS 2 (n = 176, 39.1%), ASA PS 3 (n = 43, 9.6%) and ASA PS 4 (n = 2, 0.4%), respectively. Common underlying diseases were hypertension (n = 111, 24.7%), type II diabetes (n = 44, 9.8%), chronic renal disease (n = 23, 5.1%), coronary artery disease (n = 16, 3.6%), and cerebrovascular disease (n = 7, 1.6%) (Table 1).

The incidence of abnormal preoperative serum BUN, creatinine, sodium, potassium, bicarbonate and chloride were 19.1% (n = 72), 35.4% (n = 141), 26% (n = 114), 24% (n = 105), 32.9% (n = 144) and 24.3% (n = 99), respectively (Table 2).

After multiple logistic regression was analyzed, we did not find any correlation between abnormal pre-operative blood chemistry test and postoperative complication. The only two risk factors of postoperative complication were clinical correlation which were ASA physical status $\geq$3 (adjusted odd ratio 2.91, 95% CI 1.04-8.13, *p*-value = 0.041) and duration of symptoms more than 48 hours (adjusted odd ratio 2.78, 95% CI 1.24-6.25, *p*-value = 0.013) (Table 3).

Overall incidence of postoperative complication was 9.8% (n = 44). The most common postoperative complication was infection (n = 26, 5.8%) including surgical site infection and intra-abdominal collection. Gastrointestinal complications (n = 12, 2.7%), which were bowel ileus and gut obstruction were found secondly. Serious complications presented in this study were postoperative respiratory failure (n = 3, 0.7%), postoperative stroke (n = 1, 0.2%), heart failure (n = 1, 0.2%), and renal failure (n = 1, 0.2%). We also found that there was no correlation between abnormal blood chemistry test and postoperative infection. However, the only significant risk factor for postoperative infection was the duration of symptoms more than 48 hours (adjusted odd ratio 3.96, 95% CI 1.56-10.08, *p*-value = 0.004) (Table 4).

In order to analyze the risk factor of abnormal blood chemistry, there were some missing data in some cases, so we used complete data of only 404 patients. The two risk factors associated with abnormal pre-operative blood chemistry test were ASA physical status 3 or 4 (adjusted odd ratio 4.27, 95% CI 1.25-14.65, *p*-value = 0.021) and duration of symptoms more than 48 hours (adjusted odd ratio 1.79, 95% CI 1.01-3.20, *p*-value = 0.047) (Table 5).

The most common abnormal test was creatinine. After multiple logistic regression was used in 398 cases with data of creatinine, significant risk factors were ASA 3 or 4 (adjusted odd ratio 4.28,

Table 1. Demographic data

Demographic data	n (%)
Age (years) mean (SD)	43.7 (36.4)
<20	88 (19.6)
20-45	153 (34.0)
46-60	104 (23.1)
>60	105 (23.3)
Gender	
Male	234 (52)
Female	216 (48)
BMI (kg/m^2): mean (SD)	23 (4.8)
Underweight (<18.5)	71 (15.8)
Normal (18.5-24.9)	245 (54.7)
Overweight (25-29.9)	99 (22.1)
Obesity (>30)	33 (7.4)
ASA physical status	
1	229 (50.9)
2	176 (39.1)
3	43 (9.6)
4	2 (0.4)
Underlying disease	
Hypertension	111 (24.7)
Type II diabetes	44 (9.8)
Chronic renal disease	23 (5.1)
Coronary artery disease	16 (3.6)
Cerebrovascular disease	7 (1.6)

ASA = American society of Anesthesiologists physical status; BMI = body mass index

Table 2. Incidence of abnormal preoperative blood chemistry result

Blood chemistry	Number of requested	n (%)
BUN (mg/dL)	376	72 (19.1)
Creatinine (mg/dL)	398	141 (35.4)
Sodium	438	
High (>145 mmol/L)		3 (0.7)
Low (<136 mmol/L)		111 (25.3)
Potassium	438	
High (>5.1 mmol/L)		3 (0.7)
Low (<3.5 mmol/L)		102 (23.3)
Bicarbonate	438	
High (>29 mmol/L)		2 (0.5)
Low (<22 mmol/L)		142 (32.4)
Chloride	406	
High (>107 mmol/L)		16 (3.9)
Low (<98 mmol/L)		83 (20.4)

95% CI 2.04-8.94, *p*-value <0.001) and patients who had underlying disease (adjusted odd ratio 1.73, 95% CI 1.06-2.83, *p*-value = 0.028) (Table 6).

Discussion

The incidence of abnormal preoperative blood chemistry in patients underwent emergency appendectomy in Siriraj Hospital was 19.1-35.4% which was higher than previous studies[3,7,8]. One of the reasons is that in our study, we referred to appendectomy which was urgent condition or might be emergency condition if ruptured appendicitis was suspected whereas the previous studies mentioned only in elective surgical patients. Another reason is that our study compiles patients in all ASA physical status and all age group so the difference range of laboratory result may make the incidence of abnormal pre-operative test higher than other studies.

Creatinine was the leading abnormal blood chemistry result in this study. We found that risk factors associated with abnormal preoperative creatinine were patients who had underlying disease and ASA physical status equal or more than 3. Although creatinine can increase in dehydrated patients, which is common in appendicitis cases resulting from anorexia, vomiting or diarrhea, there was no correlation between duration of symptoms and abnormal creatinine.

After multiple logistic regression was used for analysis of relationship between abnormal preoperative blood chemistry test and postoperative complication, we did not find any statistically significant relationship as in previous studies[3,7-9]. Instead of lab result, we found that risk factors of postoperative complication were clinical conditions which were ASA physical status equal or more than 3 and duration of symptoms more than 48 hours. However, these two clinical conditions can also result in abnormal blood chemistry test.

In our study, postoperative complication was 9.8% which was lower than previous study[10]. From the natural history of acute appendicitis, delayed treatment, especially in older patients, is responsible for the majority of appendicle rupture and result in localized abscess formation or generalized peritonitis typically within 24-48 hours of symptoms[11,12]. Unnecessary blood chemistry testing is not only expensive and provides little further prognosis information but also might prolong time to operating room concerning time to correct electrolyte abnormalities which can result in increasing complication, perforation rate, mortality rate, and length of stay[13-15].

Despite the fact that our study included only

Table 3. Risk factors of postoperative complication

Lab	Postoperative complication		Crude OR (95% CI)	*p*-value[#]	Adjusted OR (95% CI)[##]	*p*-value[##]
	No	Yes				
BUN: abnormal	56 (16.5)	16 (43.2)	3.85 (1.89-7.84)	<0.001*	2.27 (0.81-6.37)	0.118
Creatinine: abnormal	120 (33.5)	21 (52.5)	2.19 (1.14-4.23)	0.017*	0.66 (0.23-1.88)	0.434
Sodium: abnormal	93 (23.6)	21 (47.7)	2.96 (1.57-5.59)	0.001*	2.13 (0.81-5.59)	0.124
Potassium: abnormal	90 (22.8)	15 (34.1)	1.75 (0.90-3.40)	0.097	1.25 (0.51-3.07)	0.622
Bicarbonate: abnormal	122 (31.0)	22 (50.0)	2.23 (1.19-4.18)	0.011*	2.03 (0.88-4.68)	0.096
Chloride: abnormal	81 (22.1)	18 (46.2)	3.03 (1.54-5.95)	0.001*	1.40 (0.54-3.65)	0.487
ASA: >3	33 (8.1)	12 (27.3)	4.24 (2.00-9.00)	<0.001*	2.91 (1.04-8.13)	0.041*
Duration: >48 hour	93 (22.9)	24 (54.5)	4.04 (2.14-7.64)	<0.001*	2.78 (1.24-6.25)	0.013*
Underlying disease: ≥1	176 (43.3)	27 (61.4)	2.08 (1.10-3.93)	0.023*	0.99 (0.36-2.74)	0.991
Age: >60 year	90 (22.2)	15 (34.1)	1.82 (0.93-3.53)	0.076	1.50 (0.57-3.94)	0.412

[#] Chi-square test, [##] Multiple logistic regression, * Statistically significant

Table 4. Risk factors of postoperative infection

Factors	Infection		Crude OR (95% CI)	*p*-value[#]	Adjusted OR (95% CI)	*p*-value[##]
	No (%) n = 424	Yes (%) n = 26				
BUN: abnormal	64 (18.1)	8 (34.8)	2.41 (0.98-5.92)	0.058	1.43 (0.42-4.83)	0.563
Creatinine: abnormal	128 (34.3)	13 (52.0)	2.07 (0.92-4.68)	0.074	0.85 (0.26-2.79)	0.787
Sodium: abnormal	101 (24.5)	13 (50.0)	3.08 (1.38-6.86)	0.004*	2.63 (0.84-8.18)	0.096
Potassium: abnormal	97 (23.5)	8 (30.8)	1.44 (0.61-3.42)	0.403	1.23 (0.44-3.49)	0.694
Bicarbonate: abnormal	131 (31.8)	13 (50.0)	2.15 (0.97-4.76)	0.055	1.75 (0.66-4.59)	0.258
Chloride: abnormal	88 (23.2)	11 (42.3)	2.43 (1.08-5.49)	0.028*	0.98 (0.31-3.02)	0.966
ASA: ≥3	38 (9.0)	7 (26.9)	3.74 (1.48-9.47)	0.010*	2.88 (0.83-9.98)	0.096
Duration: >48 hour	102 (24.1)	15 (57.7)	4.31 (1.92-9.67)	<0.001*	3.96 (1.56-10.08)	0.004*
Underlying disease: yes	189 (44.6)	14 (53.8)	1.45 (0.66-3.21)	0.356	0.55 (0.16-1.85)	0.332
Age: >60 year	96 (22.6)	9 (34.6)	1.81 (0.78-4.19)	0.161	1.70 (0.52-5.62)	0.383

[#] Chi-square test, [##] Multiple logistic regression, * Statistically significant

Table 5. Risk factors of abnormal preoperative blood chemistry test

Factors	Blood chemistry		Crude OR (95% CI)	*p*-value[#]	Adjusted OR (95% CI)[##]	*p*-value[##]
	Normal (%) n = 95	Abnormal (%) n = 309				
ASA						
1, 2	92 (96.8)	267 (86.4)	1.00	0.005*	1.00	0.021*
3, 4	3 (3.2)	42 (13.6)	4.82 (1.46-15.94)		4.27 (1.25-14.65)	
Gender						
Male	51 (53.7)	153 (49.5)	1.00	0.477	1.00	0.443
Female	44 (46.3)	156 (50.5)	1.18 (0.75-1.87)		1.20 (0.75-1.93)	
Age						
<60 years	75 (78.9)	221 (71.5)	1.00	0.153	1.00	0.812
≥60 years	20 (21.1)	88 (28.5)	1.49 (0.86-2.59)		1.08 (0.58-2.02)	
Duration of symptoms						
≤48 hours	77 (81.1)	218 (70.6)	1.00	0.044*	1.00	0.047*
>48 hours	18 (18.9)	91 (29.4)	1.79 (1.01-3.15)		1.79 (1.01-3.20)	
Diarrhea						
No	76 (80.9)	205 (72.2)	1.00	0.095	-	-
Yes	18 (19.1)	79 (27.8)	1.63 (0.92-2.89)		-	
Nausea/vomiting						
No	51 (65.4)	159 (62.6)	1.00	0.655	-	-
Yes	27 (34.6)	95 (37.4)	1.13 (0.66-1.92)		-	
Underlying disease						
No	59 (62.1)	156 (50.5)	1.00		1.00	0.368
Yes	36 (37.9)	153 (49.5)	1.61 (1.00-2.57)	0.047*	1.28 (0.75-2.18)	

[#] Chi-square test, [##] Multiple logistic regression, * Statistically significant

Table 6. Risk factors of abnormal preoperative creatinine

Factors	Creatinine		Crude OR (95% CI)	*p*-value[#]	Adjusted OR (95% CI)	*p*-value[##]
	Normal (%) n = 257	Abnormal (%) n = 141				
ASA						
1, 2	245 (95.3)	109 (77.3)	1.00	<0.001*	1.00	<0.001*
3, 4	12 (4.7)	32 (22.7)	5.99 (2.97-12.08)		4.28 (2.04-8.94)	
Gender						
Male	130 (50.6)	78 (55.3)	1.00	0.366	1.00	0.446
Female	127 (49.4)	63 (44.7)	0.83 (0.55-1.25)		0.84 (0.54-1.31)	
Age						
<60 years	199 (77.4)	89 (63.1)	1.00	0.002*	1.00	0.414
≥60 years	58 (22.6)	52 (36.9)	2.00 (1.28-3.14)		1.25 (0.73-2.12)	
Duration of symptoms						
≤48 hours	195 (75.9)	98 (69.5)	1.00	0.168	1.00	0.163
>48 hours	62 (24.1)	43 (30.5)	1.38 (0.87-2.18)		1.41 (0.87-2.29)	
Diarrhea						
No	197 (78.5)	85 (68.5)	1.00	0.036*	-	-
Yes	54 (21.5)	39 (31.5)	1.67 (1.03-2.72)		-	
Nausea/vomiting						
No	147 (67.1)	67 (60.9)	1.00	0.265	-	-
Yes	72 (32.9)	43 (39.1)	1.31 (0.81-2.11)		-	
Underlying disease						
No	154 (59.9)	53 (37.6)	1.00	<0.001*	1.00	
Yes	103 (40.1)	88 (62.4)	2.48 (1.63-3.79)		1.73 (1.06-2.83)	0.028*

[#] Chi-square test, [##] Multiple logistic regression, * Statistically significant

one emergency operation and might lack some detail data in medical record such as grading of fever, operative findings, operative time, etc to reflect severity of appendicitis and account for adverse postoperative outcomes, this could lead to study limitation. The further prospective study of more emergency procedures and all data either in preoperative, intra-operative, and postoperative period in details would be beneficial.

Conclusion

Our study demonstrated that there was no correlation between abnormal blood chemistry results and postoperative complications in patients who underwent appendectomy. Risk factors from postoperative complications were ASA physical status equal or more than 3 and the duration of symptoms for more than 48 hours.

What is already known on this topic?

In healthy adults undergoing elective non-cardiac surgery, there was no evidence that support routine preoperative testing. The preoperative investigations should be based on information guided by thorough history taking and physical examination.

What this study adds?

Even in appendectomy cases which were a sample of emergency surgical problems, our study shows no association between abnormal blood chemistry results and postoperative complications. Pre-operative blood chemistry investigation should be tested only if indicated.

Acknowledgements

The authors would like to thank Assoc. Prof. Thitima Chinachoti for inspiring research topic. Thank research unit, department of anesthesiology and department of surgery for facilitating data retrieving and also Ms. Julaporn Pooliam for her statistical assistance.

Potential conflicts of interest

None.

References

1. Alvarado A. A practical score for the early diagnosis of acute appendicitis. Ann Emerg Med 1986; 15: 557-64.
2. Yu CW, Juan LI, Wu MH, Shen CJ, Wu JY, Lee CC. Systematic review and meta-analysis of the diagnostic accuracy of procalcitonin, C-reactive protein and white blood cell count for suspected acute appendicitis. Br J Surg 2013; 100: 322-9.
3. Johansson T, Fritsch G, Flamm M, Hansbauer B, Bachofner N, Mann E, et al. Effectiveness of non-cardiac preoperative testing in non-cardiac elective surgery: a systematic review. Br J Anaesth 2013; 110: 926-39.
4. Ferrando A, Ivaldi C, Buttiglieri A, Pagano E, Bonetto C, Arione R, et al. Guidelines for preoperative assessment: impact on clinical practice and costs. Int J Qual Health Care 2005; 17: 323-9.
5. Garcia-Miguel FJ, Serrano-Aguilar PG, Lopez-Bastida J. Preoperative assessment. Lancet 2003; 362: 1749-57.
6. National Collaborating Centre for Acute Care (UK). Preoperative tests: the use of routine preoperative tests for elective surgery. London: National Collaborating Centre for Acute Care (UK); 2003.
7. Siriussawakul A, Nimmannit A, Rattana-arpa S, Chatrattanakulchai S, Saengtawan P, Wangdee A. Evaluating compliance with institutional preoperative testing guidelines for minimal-risk patients undergoing elective surgery. Biomed Res Int 2013; 2013: 835426.
8. Dzankic S, Pastor D, Gonzalez C, Leung JM. The prevalence and predictive value of abnormal preoperative laboratory tests in elderly surgical patients. Anesth Analg 2001; 93: 301-8.
9. Mantha S, Roizen MF, Madduri J, Rajender Y, Shanti NK, Gayatri K. Usefulness of routine preoperative testing: a prospective single-observer study. J Clin Anesth 2005; 17: 51-7.
10. Margenthaler JA, Longo WE, Virgo KS, Johnson FE, Oprian CA, Henderson WG, et al. Risk factors for adverse outcomes after the surgical treatment of appendicitis in adults. Ann Surg 2003; 238: 59-66.
11. Berger DH, Jaffe BM. The appendix. In: Brunicardi FC, editor. Schwartz's principles of surgery. 9th ed. New York: McGraw-Hill; 2010: 1073-89.
12. Temple CL, Huchcroft SA, Temple WJ. The natural history of appendicitis in adults. A prospective study. Ann Surg 1995; 221: 278-81.
13. Barrett ML, Hines AL, Andrews RM. Trends in rates of perforated appendix, 2001-2010: Statistical brief #159. Healthcare Cost and Utilization Project (HCUP) Statistical Briefs. Rockville, MD: Agency for Health Care Policy and Research (US); 2006.
14. Ekeh AP, Monson B, Wozniak CJ, Armstrong M,

McCarthy MC. Management of acute appendicitis by an acute care surgery service: is operative intervention timely? J Am Coll Surg 2008; 207: 43-8.
15. Ditillo MF, Dziura JD, Rabinovici R. Is it safe to delay appendectomy in adults with acute appendicitis? Ann Surg 2006; 244: 656-60.
16. Udgiri N, Curras E, Kella VK, Nagpal K, Cosgrove J. Appendicitis, is it an emergency? Am Surg 2011; 77: 898-901.

อุบัติการณ์ของผลการตรวจทางเคมีคลินิกก่อนผ่าตัดที่ผิดปกติและความสัมพันธ์กับภาวะแทรกซ้อนหลังผ่าตัดในผู้ป่วยที่มารับการผ่าตัดไส้ติ่งอักเสบเฉียบพลันที่โรงพยาบาลศิริราช

เพ็ญศิริ ศรีชีวะชาติ, สมพล นาคสุทธิ์

ภูมิหลัง: *ไส้ติ่งอักเสบเป็นโรคฉุกเฉินทางศัลยกรรมที่พบได้บ่อย การตรวจความสมบูรณ์ของเม็ดเลือด (CBC) และการตรวจปัสสาวะช่วยในการวินิจฉัยแยกโรค ในขณะเดียวกันการตรวจทางเคมีคลินิก (Blood chemistry) มีส่วนช่วยในการประเมินผู้ป่วยก่อนการผ่าตัด แม้ว่าในปัจจุบันยังมีหลักฐานจำกัดที่บ่งชี้ว่าการตรวจทางเคมีคลินิกก่อนผ่าตัดฉุกเฉินนั้นได้ประสิทธิภาพและมีความคุ้มค่าทางเศรษฐศาสตร์หรือไม่*

วัตถุประสงค์: *วัตถุประสงค์หลักได้แก่ อุบัติการณ์ของผลการตรวจทางเคมีคลินิกที่ผิดปกติในผู้ป่วยที่มารับการผ่าตัดไส้ติ่งอักเสบที่โรงพยาบาลศิริราช วัตถุประสงค์รองได้แก่ ความสัมพันธ์ระหว่างผลการตรวจที่ผิดปกติและภาวะแทรกซ้อนหลังผ่าตัดและค้นหาปัจจัยที่เกี่ยวข้องกับผลการตรวจที่ผิดปกติ*

วัสดุและวิธีการ: *ค้นหาข้อมูลย้อนหลังในเวชระเบียนและเอกสารทางวิสัญญี จากผู้ป่วยที่มารับการผ่าตัดไส้ติ่งอักเสบที่โรงพยาบาลศิริราช ตั้งแต่วันที่ 1 มกราคม พ.ศ. 2555 ถึง 31 มีนาคม พ.ศ. 2557 บันทึกข้อมูลต่างๆ ได้แก่ข้อมูลทั่วไปของผู้ป่วย ผลการตรวจทางเคมีคลินิกและภาวะแทรกซ้อนหลังผ่าตัด ข้อมูลทั่วไปของผู้ป่วยใช้สถิติเชิงพรรณนา อุบัติการณ์ผลการตรวจทางเคมีคลินิกที่ผิดปกตินำเสนอเป็นจำนวนและร้อยละ ความสัมพันธ์ระหว่างผลการตรวจทางเคมีคลินิกที่ผิดปกติและภาวะแทรกซ้อนหลังผ่าตัด และปัจจัยที่เกี่ยวข้องกับภาวะแทรกซ้อนหลังผ่าตัดนำเสนอด้วย Odds ratio และช่วงความเชื่อมั่น*

ผลการศึกษา: *อุบัติการณ์ของผลการตรวจทางเคมีคลินิกผิดปกติ ได้แก่ BUN 19.1%, creatinine 35.4%, sodium 26%, potassium 24%, bicarbonate 32.9% และ chloride 24.3% ไม่พบความสัมพันธ์ระหว่างผลการตรวจที่ผิดปกติและภาวะแทรกซ้อนหลังผ่าตัด ปัจจัยที่มีผลต่อภาวะแทรกซ้อนหลังผ่าตัดอย่างมีนัยสำคัญทางสถิติ ได้แก่ ASA physical status มากกว่าหรือเท่ากับ 3 (adjusted OR 2.91, 95% CI 1.04-8.13, p-value = 0.041) และระยะเวลาที่มีอาการมากกว่า 48 ชั่วโมง (adjusted OR 2.78, 95% CI 1.24-6.25, p-value = 0.013) ปัจจัยที่มีความสัมพันธ์กับผลการตรวจที่ผิดปกติ ได้แก่ ASA physical status มากกว่าหรือเท่ากับ 3 (adjusted OR 4.27, 95% CI 1.25-14.65, p-value = 0.021) และระยะเวลาที่มีอาการมากกว่า 48 ชั่วโมง (adjusted odds ratio 1.79, 95% CI 1.01-3.20, p-value = 0.047)*

สรุป: *เนื่องจากไม่พบความสัมพันธ์ระหว่างผลการตรวจทางเคมีคลินิกที่ผิดปกติและภาวะแทรกซ้อนหลังผ่าตัด ดังนั้นจึงควรส่งตรวจในรายที่มีข้อบ่งชี้เท่านั้น*