



ICMHS



UKM

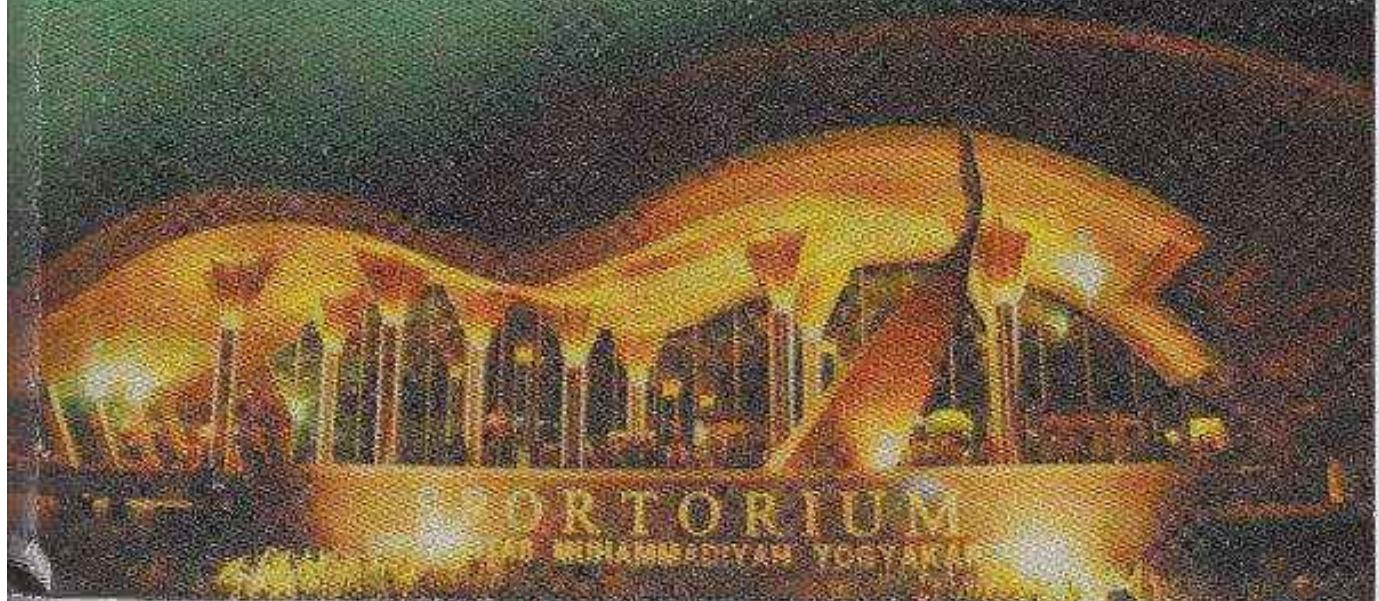


September 1st - 3rd 2015
Asri Medical Center, Yogyakarta

IISTE

International Conference of Medical and Health Sciences 2015

"Leveraging Multidisciplinary Collaboration
to improve Healthcare Quality and Equity"





icmhs



UKM
Universitas Kristen
Makassar



IISTE

International Conference of Medical and Health Sciences 2015

"Leveraging Multidisciplinary Collaboration
to Improve Healthcare Quality and Equity"

September 1st - 3rd, 2015
Asri Medical Center Yogyakarta

**IISTE
INTERNATIONAL CONFERENCE
OF MEDICAL AND HEALTH SCIENCES 2015**

xviii + 118 pgs.; 21x29 cm

Steering Committee:

dr. Ardi Pramono, Sp.Ai, MKes
dr. Dirwan Suryo Sulario, Sp. F, MSc
drg. Laelia Dwi A, Sp. KGA

Organize Committee:

DR. dr. Titiek Hidayati, MKes

Secretary:

Falasifah Ani Yuniarti, SKep, Np, MAN
Mindar DWI Astuti

Treasurer:

dr. Faridra Pawestri, MSc

Scientific Committee:

DR. Shanti Wardaningsih, SKp, MKep, Sp. KJ
DR. Yoni Astuti
DR. dr. Iman Permana, MKes
Dr. Orizati Hilman, MSc, CMIM
DR. drg. Tita Ratya Lhari, Sp.Ort
Nurul Muziyah, M.Sc., Apt
Dra.Salmah Orbayyinah, Apt
Prumitha Esha ND, M.Sc., Apt
SN Nurul Makiyah
Dr. Denny Anggoro Prakoso
Miftahul Haq, MSI

Event Division:

dr. Yasser Ahmad Fannan
dr. Inumutiar Ranti
Sle-ASK:
Radhesta Debby 'PranaNafi'm, SKep, Ns,
Reni Widyastuti, SKep, Ns
TyasAstuti, SE
Ratna

Business Fund Division:

drg. Dwi Aji Nugroho, MDSc
dr. Supriatiningsih, Sp OG
Erfu Firmawati, SKep, Ns, MNS

Accommodation Division:

dr. Ika Setyawati, MSc
Nur Huyati Santoso, AMK

Equipment Division:

Aria, S.H
Puguh, S.Si, MSc
Maarif, ST

Documentation:

Irmawati Ranti
Muhammad Arifani, S.H

All right reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers.

ISSN 2422-8419

Printed by PT Lestika Nouvalitera.
The content is out of the printing company responsibility.

Supported by: Universitas Muhammadiyah Yogyakarta,
Direktorat Tinggi Keristek dan DIKTI

Welcome Message from Rector



Praise to Allah who gives us blessings and compassion so FKIK UMY can finally hold the International Conference for Medical and Health Sciences (ICMHS) 2015. And may shalawat and peace be upon Muhammad our prophet, his family, friends and all his followers until the end of our lives.

Universitas Muhammadiyah Yogyakarta Proudly present and conduct the ICMHS 2015 which is a collaborative effort between various school under the faculty of Medicine and Health Sciences. This event is held in line with UMY's vision of striving to become a world class university. Therefore, it is hoped with the existence of this event UMY might gain more acknowledgment and might play more role in the international settings.

Indonesia, with around 240 million population, has been considered as the fourth most populous country in the world. The increasing prevalence of chronic illnesses along with current infectious illnesses has made a double burden to the delivery of healthcare service in the country. Recent development of a new healthcare service system, with the emergence of *Jamkesmas Nasional* or National Social Security, with the inherent health insurance system, has provide a better approach to a more promotional and preventive healthcare system. However, there are still many problems to deal with, the maintain a better quality and equally delivered health care. Therefore, collaboration between various healthcare practitioners is needed to ensure the achievement of those objectives.

Last but not least, great appreciation to the head of the faculty of Medicine and Health Sciences along with the staff for their great effort to hold this event. I certainly hope this event will run successfully and can be established as our own annual event. Insya Allah.

Prof. Dr. Bambang Cipto, MA

Table of Contents

Welcome Message from Committee	v
Welcome Message from Rector	vii
Welcome Message from Dean	x
Welcome Message of the Head of Department of Yogyakarta	xi
Keynote Speaker of International Conference	xiii
Table of Contents	xv
Effect of Guided Imagery and Music (GIM) on Preoperative Anxiety of Sertu Cacarta (SC) Patient in RSUD Banyuwangi	
<i>Ade Sutrisno</i>	1
Antidiabetic Activity of Banana Peel Extract : Effect on Hyperglycemia, Hyperlipidemia and Augmented Oxidative Stress in Diabetes Mellitus	
<i>Annisa Fitriani, Rizma Intisawati, Je, M Kes</i>	3
Celerity Difference in Incision Wound Healing Between Ethanol Extract of Curcuma (Curcuma Xanthorrhiza Roxb.) and Povidone Iodine in White Mice (Rattus Norvegicus)	
<i>Ardi Prasono, Rhera Ditzakko</i>	6
Fundus Camera as a Screening for Diabetic Retinopathy in AMC Yogyakarta Indonesia	
<i>Iunant Setyandriana, Nur Shani Meida, Dantawara Setiarta</i>	10
The Effects of the Education about Hand hygiene on the Knowledge, Attitude and Hand Washing Compliance of the Paramedics in Nur Hidayah Hospital Yogyakarta	
<i>Kusbariyanto</i>	17
The Differences between Pregnant Women with Obese and Non Obese towards Length of Labor Time in SADEWA Mother and Children Hospital, Yogyakarta	
<i>Sugriyatiningsih, Hismawati</i>	30
The Relationship of Sepsis Occurrence and The Reduction of Platelet Count: A Research in PKU Muhammadiyah Yogyakarta Hospital for The Period of January to December 2010	
<i>Linda Rosita, Arifudin Cipto Husodo</i>	26
Support for Increasing Intention to Exclusive Breastfeeding	
<i>Septian Emma Dwi Jatnika, Mochain Maulana</i>	32
Profile of Nitric Oxide (NO) Levels in Yogyakarta Society	
<i>Surdawati A, Akrom, Darmawan E</i>	38

Preliminary Study: The Benefit of BaPIA Intomnia (Anti-Insomnia Massage Kerchief) Tool <i>Titlek Hidayati, Qur'an Aini Dewi, Nidia Nur Azizah, M. Fajarsihada, Hannami Ahwal Zaini, Mahanmad Purwana Ardhi</i>	43
Intestinal Parasite Infestation as Risk Factor of Malnutrition in under Five Year Children in Gamping Subdistrict of Sleman, Yogyakarta Province, Indonesia <i>Iri Walandari Keswoningih, Bambang Edi Setyarto</i>	46
Language Proficiency and Student Performance in English-Speaking Country Medical Schools: A Mini Review <i>Windy Setyoningroho, Inzu Permana</i>	51
Patient Safety and Infection Control Assessment of the Ptu Muhammadiyah Hospital Hemodialysis Center: A Basis for Nursing Care Program <i>Firi Arofadi</i>	56
The Number of Lymphocyte and Monosit due to Hypoxic Hypoxia <i>Raina Indrawati</i>	62
The Effect of Ethanollic Extract of Purple Yam Tuber (<i>Dioscorea alata</i> L.) on Bone Calcium Levels in Ovariectomized Rat <i>Sri Iustinatan, Alfiana Wahyuni, S.N. NurulMakkyah, Zulfaulita</i>	65
Preliminary Study: The Benefit of Melody (Medical Clothes and Aid Emergency) <i>Titlek Hidayati, Aisyah Lipita Indeka, Dede Muhammad Munfiq, Wahyu Kusniawati, M. Ihsan Fauzi</i>	70
Learning Satisfaction toward PBL (Problem-Based Learning) and the use of ICT (Information Communication Technologies) <i>Juana Ernawaty, Astried</i>	73
Evaluation of Urinary Catheter Installation Capability on Nurses in Order to Increase Patient Safety in PKU Bantul Hospital <i>Biloyati, Ekawati Listiowati, Elyse Maria Rosa</i>	79
The Correlation between <i>Candida</i> sp. Contamination in the Bathroom Water and Candidiasis Incidence <i>Inayati, Afendil Purbananda</i>	85
Extract Basil (<i>Ocimum basilicum</i>) as of Mosquito <i>Aedes Aegypti</i> Repellent <i>Rahmasari Fawindra V.</i>	88
Interprofessional Education in Teaching Hospital <i>Moh. Afandi, RN, MAN</i>	92

Impact of Interprofessional Education on Collaboration Attitudes Among The Student of Medical Faculty and Health Sciences Universitas Muhammadiyah Yogyakarta <i>Salmah Arbaymah, Lukmi Putri Litani</i>	97
Diagnostic Test of Combination of Wall Bladder Thickening Ultrasound and Leukosit Esterase on Clinical Cystitis <i>Ana Mujdarwati, Inuvari Habib, Suryanto</i>	101
Adherence to ARV, Clinical Stages of AIDS, and Self-Perceived Risk of HIV Infection are Predictors of Immunologic Success on PLWH in Surabaya and Sidoarjo, East Java <i>Wicenta Dizarzetti</i>	107
The Effectiveness of Peer Learning Method in Developing Logical Clinical Skills on Medical Students <i>Anir Syafiqudabi, Trix Astika Endah Permatasari</i>	113
Evaluation of Nurse Perception in Applying Information Systems of PKU Muhammadiyah Yogyakarta Hospital <i>Irenawati</i>	118

Diagnostic Test of Combination of Wall Bladder Thickening Ultrasound and Lekosit Esterase on Clinical Cystitis

Ara Majidawati¹, Inayati Habib², Suryanto³

1. Muhammadiyah University Yogyakarta, Radiology Department, Yogyakarta, Indonesia

2. Muhammadiyah University Yogyakarta, Microbiology Department, Yogyakarta, Indonesia

3. Muhammadiyah University Yogyakarta, Pathology Clinic Department, Yogyakarta, Indonesia

The research is financed by Asian Development Bank. No. 2006-1171 (Sponsoring information)

Abstract

Combination wall bladder thickening on ultrasound and leukocyte esterase decades often used as an adjunctive diagnostic in some cystitis cases. Purpose of this research was to determine how sensitivity and specificity of combination wall bladder thickening on ultrasound and leukocyte esterase in sufferers with clinical cystitis. Method of this research is diagnostic test to determine the sensitivity and specificity of combination wall bladder thickening on ultrasound and leukocyte esterase in sufferers of gold standard with cystitis clinical is bacteriological urine (urine midstream streak plate method). The results of sensitivity and specificity of this research is 80,33% and 76,92%. This value is higher than sensitivity and specificity ultrasound or leukocyte esterase separately. Combination of examination is very important for screening clinical diagnosis of cystitis. Ultrasound helps knowing the clinical causes of non infection cystitis, such as obstruction of bladder due to fibrosis, cystocele, mucous wall bladder abnormalities as there are masses, trabekulasi, prostate hypertrophy, neurogenic bladder and stone. Leukocyte esterase is a parameter of the process inflammation in bladder. The Conclusion is research has a good sensitivity and specificity so that enforcement needed in diagnosis of cystitis.

Keywords: ultrasound of the wall bladder thickening, leukocyte esterase, sensitivity, specificity, cystitis

1. Introduction

Cystitis is an inflammatory reaction of wall bladder caused by several things which is the most common cause of bacterial infection that followed another mikroorganisme as fungi, viruses and parasites. Cystitis is the most common cause of gram-negative bacteria such as *Escherichia coli* (80%), *Acinetobacter calcoaceticus*, *Klebsiella pneumoniae* and gram-positive bacterial such as *Staphylococcus aureus* often occurred at infants, children and increases in the elderly. The incidence of cystitis in female more often than male (female: male ratio = 2 : 1), because the female urethra is shorter and its location near the ureteral (1,2,3).

The symptoms of cystitis do not typical and some without symptoms. Common symptom is dysuria, hematuria, heartburn or burning when urinating. There are also other symptoms as suprapubic pain, difficult to urinate, tenosmus, nocturia and even secondary nocturnal enuresis, prostatismus (difficulty starting urination and less heavy flow of urinate), pain uretra, ureter and renal colic (1,3).

Diagnosis of cystitis is often proposed by some clinician (internist, pediatric or urologist), among which the examination of leukocyte esterase (LE) and ultrasound (4,5). The ultrasound of bladder has been made include the measurement of wall thickness for cases related to abnormalities in the bladder. Some studies indicate that there is a relationship between bladder wall thickness with cystitis due to inflammation of the mucosa and the musculus detrusor. Echostructure of mucosal bladder differences with echostruktur detrusor muscle (3). The positive leukocyte esterase results has a significant relationship to the number of neutrophils, either in one piece or lysis indicating the inflammatory process in cystitis. On examination of the urine strip (or strips dipstick dye) the amount of leukocyte esterase urine based leukocytes will produce a color change reaction which gives information about the concentration of substances present in urine and read quantitatively (6). The diagnosis of bacterial cystitis is surely to be found bacteria in the urine culture. Level of significance of the number of bacteria in urine is greater than 100,000 / ml urine (7). Some the questions that arise, whether the sensitivity and specificity of the combined of the wall bladder thickening on ultrasound and LE high enough as a diagnostic support case Cystitis? The diagnosis of cystitis can be enforced by the combined size of the wall thickening in ultrasound and LE, when the sensitivity and specificity of the above examination has high value. This can help enforcement of early diagnosis and treatment of cystitis can be immediately done.

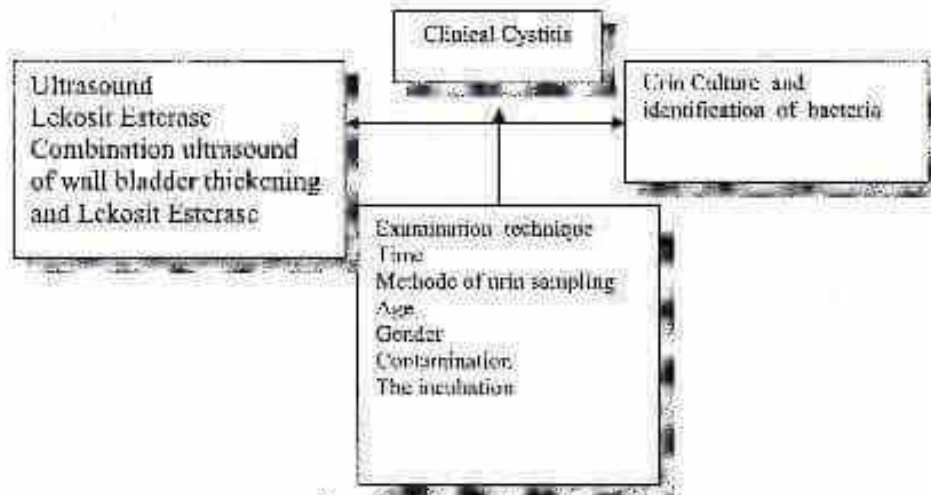


Figure 1. The research framework.

3. Research Methods

This study was to determine the sensitivity and specificity of the combined wall bladder thickening on ultrasound and LE in patients with cystitis. The gold standard of this research is bacteriological urine culture with diagnostic test with 2×2 table. The implementation of this research from April to November 2011 in PKU Muhammadiyah Yogyakarta Hospital and 3 clinic doctors in private practice at Kulon Progo. The sample 100 patients that inclusion and exclusion criteria. Inclusion criteria : 1) age 18-60 years with clinically Cystitis (at least 2 clinical symptoms) were fill an informed consent as research subjects ; 2) . Bladder mass , congenital anomalies or an enlarged prostate ; 3) . not pregnant ; 4) . not undergoing radiotherapy or chemotherapy due to the bladder or prostate malignancy . Exclusion criteria , found a mass in the bladder on ultrasound, Clinical symptoms of cystitis are dysuria . often feels the urge to urinate (frequency) . cloudy urine or redness and subfebril fever.

Lekosit esterase examination done in the laboratory of PKU Muhammadiyah Hospital and culture of urine in the Laboratory of Microbiology, Medical Faculty of Muhammadiyah University Yogyakarta. Ultrasonod of bladder, LE and urine culture reviewed by experts. Tools and materials research are 1). Ultrasound with probes from 1.5 to 7 MHz; curve shape; 2). leukocyte esterase reagent strip commercial urine; 3). bacteriological urine and identification of bacteria that cause UTIs; 4) urine sampler; 5). computer, stationery and paper. The research variables: 1). independent variable which consists of a combination of wall thickness on ultrasound and LE is normal and abnormal. 2). dependent variable, that urine culture (mid stream) is normal and abnormal. Bladder wall thickness is the measure of the mucosa lining the detrusor muscle with transabdominal ultrasound in transverse and longitudinal section. Used probe frequencies from 3.5 to 5 mhz with bladder filled with water 80% (150-200 ml). Levels of leukocyte esterase, an enzyme that is present in primary granules of neutrophils were measured semiquantitatively. Positive results indicate the presence of neutrophil cells in the urine. Figures Germs, is the number of bacteria from urine culture cystitis sufferers. Positive results when the bacteria are found in significant amounts, unit of colony forming units / ml (cfu / ml). Identification of Bacteria: a type of bacteria that grow and are determined based microscopic and biochemical tests.

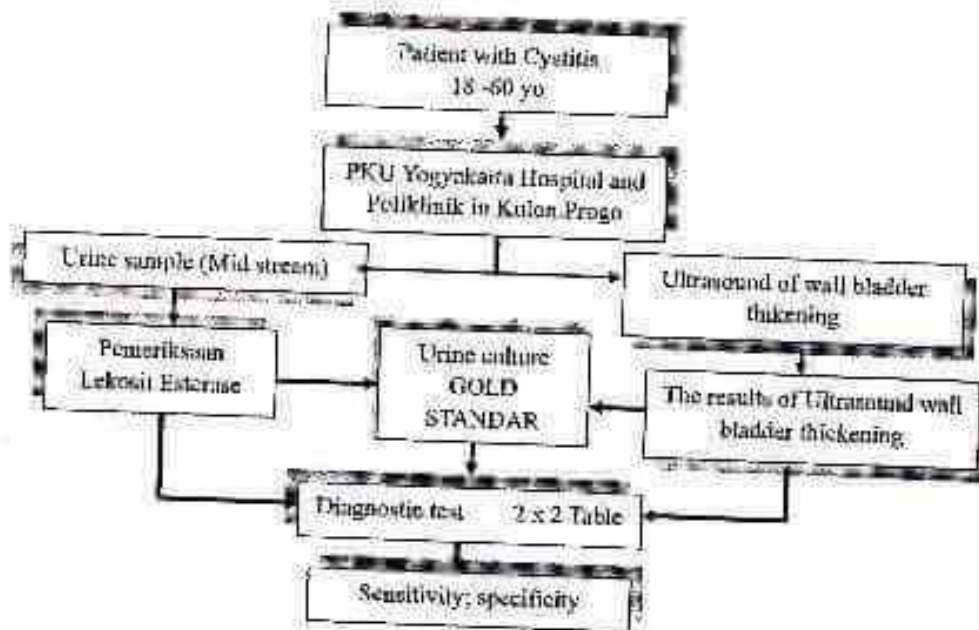


Figure 2. The course of study

3. Results and Discussion

3.1. Results

Table 1. Characteristics subjects of the research

NO	Description	Classification	The total number of	%
1	Gender	Men	40	40
		Woman	69	60
2	Age	≤ 20 yo	6	6
		20-30 yo	53	55
		> 50 yo	39	39
3	Clinical Symptoms	Dysuria	69	69
		Suprapubic pain	15	15
		Hematuria	5	5
		Frequency	11	11
4	Leukosit esterase	Normal (≤ 25)	42	42
		Abnormal (> 25)	58	58
5	Ultrasound	Normal (≤ 0,5 cm)	41	41
		Abnormal (> 0,5)	59	59
6	Ultrasound + LE	Normal	58	58
		Abnormal	42	42
7	Bacteriology Urine	Positivo (Cystitis)	61	61
		Negatif	39	39

Table 2. Partzen bacteria cause cystitis

NO	Bacteria	Total number	ULTRASOUND
1	<i>E.coli, Staphylococcus Sp, Streptococcus Sp</i>	16	positive
2	<i>E.coli, Salmonella Sp, Klebsiella Sp</i>	6	positive
3	<i>P.coli, Staphylococcus Sp, Salmonella</i>	1	negative
4	<i>E.coli, Staphylococcus Sp, Candida</i>	15	Negative 5; positive 10
5	<i>E.coli, Klebsiella Sp, Candida</i>	1	positive
6	<i>E.coli, jamur/candida</i>	2	2 (negative)
7	<i>E.coli, Streptococcus Sp</i>	8	4 (positive 4; negative 4)
8	<i>E.coli</i>	2	positive
9	<i>Staphylococcus Sp, Streptococcus Sp, Candida</i>	4	positive
10	<i>Staphylococcus Sp, Streptococcus Sp</i>	1	positive
11	<i>Staphylococcus Sp</i>	1	positive
12	Candida/Fungi	4	negative

Table 1. 2x2 table of diagnostic test combination ultrasound of wall bladder thickening and lokosi entaraso

Ultrasound	LE	Urine Culture	
		+	-
+	+	49	9
	-	12	30

Sensitivity : $49/61 \times 100\%$ = 80,33%

Specificity : $20/24 \times 100\%$ = 76,92%

3.2. Discussion

Total sample of 100 patients with cystitis consisting 40 men (40%) and 60 women (60%). This is in accordance with the theory which incidence of cystitis in women more often than men because the distance of the bladder by os-ium urethra externa is shorter in women than men and women are easily contaminated with the genitalia from anorectal (3,6). The incidence of reproductive age much of cystitis that is between 20-50 years in which sexual activities at this age are still active. This is in accordance with the number of the subject of this research is the most aged between 20-50 years (3).

The complaint of most research on the subject of cystitis are dysuria i.e. 69 people (69%), a sense of discomfort or pain, heat before, during and after urination. This happens due to an inflammatory process involving the walls of the bladder that consists of several layers, i.e. the inner wall of the urothelium (epithelium), lamina propria, lamina muscularia (detrusor muscle) and the tunica adventitia. Due to the inflammatory process, is in addition to inflicting pain also cause blockage of the urethra from the bladder to the urethra so that steady stream of urine from the bladder less smoothly. It is cause more severe symptoms of cystitis i.e. dysuria, frequency, painful suprapubik, hematuria (8).

The results of bacteriological urine cultures from 100 subjects of research, there are 61 patients (61%) are the result of positive and 39 patients (39%) are negative. Based on this research we can see microorganisms cause cystitis most in 61 patients who positive urine culture, based on the order is *Escherichia coli*, *Staphylococcus Sp.*, *Streptococcus Sp.*, *Candida* and there are several other bacteria, i.e. *Klebsiella Sp.*, *Salmonella sp.* The microorganisms most frequently cystitis from some references are bacteria, followed parasites, fungi and viruses. The bacteria most often causes cystitis is *Enterobacteriaceae* i.e. *Escherichia coli*, *Salmonella Sp.*, *Klebsiella Sp.*, and Gram-positive bacteria i.e. *Staphylococcus Sp* and *Streptococcus Sp* (1,3,9).

Subjects with positive urine bacteria culture results as much 61 people and 59 have wall thickened bladder (positive) and 41 patients not thickened (negative). Subject that 39 negative culture urine turned out to be a ultrasound and the results showed thickening of the wall bladder as much as 14 of the subject does not thickening of 25. In this study, thickening of the wall bladder in sufferers of clinical cystitis is not always related to the bacteria that exists in the bladder. It can be inferred that the thickening of the walls bladder is not always the case at all, because of thickening of the wall bladder also influenced by various factors such as age, the body's immune system, the number of colonies of bacteria, bacterial species and invasive nature of the bacteria, the presence of disease/other abnormalities on bladder like urethroroete, the presence of enlarged prostate mass (?).

It is also shown with a combination of ultrasound and LE, out of 61 subjects of the bacteria culture urine are true positive as much as 49 subjects and 12 subjects with negative results. Thirty-nine subjects the

results of bacterial culture negative urine as true negative 30 subjects. Combination of ultrasound and LE assessment obtained sensitivity and specificity 80,33% and 76,92%. This value is good enough as a reference supporting examination for cases of cystitis because its value is over 70%. Sufferers of clinical examination performed combined ultrasound and LE who actually bacterial cystitis is around 80,33. The combination of this diagnostic test (LE and ultrasound) in the case of cystitis have specificity 76,92% which means that this test can get rid of a UTI suspect sufferers really negative bacterial cystitis did not suffer as much as 76,92. Preliminary research on there meaningful relationship between thickening bladder ultrasound with LE (10). Lekosit esterase reaction is the initial stage of immunity that will appear after the lysis of membranes lekosit which causes the granule azurofilik in the lekosit cytoplasm will lisis, so that this examination will show positive results (quantitative values > 25). Examination of LE (detects esterase in granulocytic white blood cells (neutrophils, eosinophils, basophils, and monocytes). Neutrophils are the most frequent lekosit associated with the presence of a bacterial infection. Esterase also on trichomonas and histomon). Lymphocytes, erythrocytes, bacteria and cells of kidney tissue does not contain esterase. The positive results of the examination of LE most often showed a bacteria as has been discussed previously, infections caused by Trichomonas, Chlamydia, fungi and inflammation of kidney tissue (interstitial nephritis) produces leukosturia without bakteruri (11).

The results of examination of LE-positive are not always followed by a thickening of the wall bladder ultrasound or urine bacteria culture are positive. This can be caused by several things, including:

1. The time between sampling urine with an examination of urine culture and LE don't along with ultrasound assessment. This led to the results of culture urine and LE are positive and wall bladder in ultrasound not thickened (negatif). This can happen otherwise. Lekosit esterase at the time of the urine is no fresh lead to increased number of lekosit and bisa impact transit that will provide the value of the lekosit esterase in quantitative more than 25 (positive results), culture of the urine can give positive results because of the urine are not fresh than bacterial growth can occur (11).
2. in the case of acute bacterial cystitis. The walls bladder is not thickening and measure of wall bladder done virtually on ultrasound, is the number of lekosit urine already began to increase that impact with the value lekosit esterase-positive (20,21). Chronic cystitis can cause pathological changes in the structure of mucosa and the walls of the bladder (detrusor muscle) that cause diffuse thickening (gross wall) and the reduced capacity of the bladder. The thickening measurement of wall bladder can give positive results (12).

Sensitivity and specificity of combination of wall bladder thickening ultrasound and LE in the case of cystitis 73,77% and 64,10%. The value of this sensitivity is good (over 70%), while the value of specificity of ultrasound is a little low (below 70%). The results of the ultrasound with a thick wall which shows normal bladder really is not a case of bacterial cystitis 64,10%. The walls of the bladder that do not thicken the cystitis can be the inflammatory process is still early, so the wall bladder thickness less than 0.5 cm.

Thickening of the wall of the bladder increases can be caused by several factors, including the presence of abnormalities in the bladder that might not be visible by ultrasound. It cause the occurrence of urethrovaginal junction obstruction so that the urine flow so a steady stream of urine is not smooth. Tissue fibrosis formed due to the process of chronic cystitis like as divertikulosis, cystokole that causes the prolapsnya basis of the trigone, infection from outside bladder like Crohn diseases, prostate enlargement and others (8).

Sensitivity and specificity of the LE on suspect cystitis is 78,69% and 74,36%. This value is quite good because more than 70%. The positive results of the examination of LE most often showed a bacteria as has been discussed previously, infections caused by Trichomonas, Chlamydia, fungi that they inflammation of kidney tissue (interstitial nephritis) produces leukosturia without bakteruria (11).

Combination of ultrasound and LE examination are required because it has better specificity than ultrasound assessment or LE in itself alone. Ultrasound can rule out high enough people with cystitis symptoms that does really not suffer bacterial cystitis with specificity 80,33%. Ultrasound is required to see the cause of the thickening of the walls bladder in the cases that cause by non infectious cases (non bacterial cystitis) that can result in hypertrophy detrusor muscle, dilation of bladder, the mucous disorder (focal) thickening of the mucosa of bladder, trabekulasi, divertikel as well as the presence of the masses. In research study by the Khullar, et al conducted that wall thickening of bladder in ultrasound diagnostic test on the case of impaired miksi (include thickening of walls and voiding function) with the standard reference Cystografi, Cystoscopy and uroflowmetri, get the value of the sensitivity and specificity high enough that is 84% and 89%. Research results Khullar, et al get the cause of the thickening of the wall bladder due to contraction of the detrusor muscle has increased due to the obstruction of the urethra ostium internum (due to fibrosis, cystokole, mucous wall bladder abnormalities as there are masses, trabekulasi, neurogenic bladder, prostate hypertrophy and presence of stones 8,10, 12,13,14).

4. Conclusions and Suggestions

The Conclusions of sensitivity and specificity of combined ultrasound wall bladder thickening and LE in sufferers with clinical cystitis is 80,33% and 76,92%. This value is higher than the value of the sensitivity and

specificity of ultrasound (73,77% and 64,10%) and LE (70,69% and 74,36%) in himself alone. The joint inspection is extremely important for clinical diagnosis of Cystitis screening against the case of cystitis. Combined ultrasound wall bladder thickening and LE it also has a good point to get rid of the specificity of the diagnosis of the case really is not bacterial cystitis. Wall bladder ultrasound helps to know the clinical causes of UTI/cystitis non bacterial, as due to the obstruction of the urethra ostium internum due to fibrosis, cystocele, mucous wall bladder abnormalities as there are masses, trabekulasi, prostate Hypertrophy, neurogenic bladder and the stone. Bacterial causes of cystitis is most a. *Coli*, *Streptococcus Sp.*, *Staphylococcus Sp* and yeast/Candida.

Suggestions this research many flaws because of the limitations of the existing infrastructure, so the researchers suggest can do similar studies with control some things like below:

This research should be done in one building/hospital so that ultrasound assessment, LE and bacteriological cultures of urine can be easily controlled and avoid the existence of ambiguous results due to the examination of the urine are not fresh (over 4 hours).

1. Ultrasound done by a single person who has done the kappa test and using ultrasound with the same specs so that provide measurement results valid wall bladder thickness, as well as for inspection of LE and bacteriological cultures of urine.
2. Ultrasound conducted by a single person who has undergone a kappa and uses ultrasound with the specification that the same given result of measuring the thickness of a wall bladder, likewise for examination, leukosit esterase and urine culture bacteriology.

REFERENCES

- 1) Agus Terry, (2001). *Infeksi Saluran Kemih, Buku Ajar Ilmu Penyakit Dalam Jilid 1 edisi IV*. Jakarta: FK UI.
- 2) Khan AN. Sisitits in Ultrasound in Overview of Bladder Sisitits Imaging. Medscape referansi. <http://Medicineonline.com/article/377318-overview>, 2011.
- 3) Mustafa Z.M and Bahaaedin A.E. Ultrasound in The Incidence of Urinary Bladder Diseases, Khartoum Teaching Hospital-Sudan. International Journal of Basic and Applied Medical Sciences ISSN: 2277-2103 Vol. 7 (3) September-December, 2012. pp.153-161.
- 4) Santosa A RA, Tjabesjati, Sankasa A, Tarnomo, Panduan Penatalaksanaan (Guidelines) Pediatric Urology (Urologi Anak) di Indonesia. Infeksi Saluran Kemih 2005.
- 5) Jequier S RD. Sonographic measurements of the normal bladder wall in children. American Journal Radiology 1987;149:563-6.
- 6) Henry JB, 2001. Clinical Diagnosis and management by Laboratory Methods, 20th edition. W.B. Saunders Company, Philadelphia, p: 367-402.
- 7) Tholib, A., 2010. Petunjuk Praktikum Mikrobiologi Fakultas Kedokteran Universitas Gadjah Mada.
- 8) You Cheong, J.J; Woodward, P.J; Manning, M.A dan Davis, C.J. *Inflammatory an Bladder Masses: Radiologic-Pathologic Correlation*, RadioGraphics 2006; 26:1847-1868.
- 9) Yamase H. Acute and Chronic Sinitis of The Bladder. <http://pathwchuchocdu/eAtlas/GU/1352111M>. 2010.
- 10) Pranantyo L and Mujdawati, A, 2012. Hubungan Penebalan Dinding Kandung Kemih pada Ultrasonografi dengan Leukosit Esterase pada Penderita Klinis Infeksi Kandung Kemih (Sistitis). Jurnal Kedokteran Ebers Papyrus, volume 18 Nomor 1 Juni 2012 ISSN 0854-8862
- 11) Sutton, D., 2007. The Bladder and Prostat in Geriatric urinary tract, Textbook of Radiology And Imaging, vol 2, 7th ed.
- 12) Sukandar, Uday. (2006). *Infeksi Saluran Kemih, Buku Ajar Ilmu Penyakit Dalam Jilid 1 edisi IV*. Jakarta: FK UI.
- 13) Sorikbi HN, R.M; Nuureddini, H.G; Navuse, A.R; Shafee, H; Hadijpoor, A.. Sonographic measurement of bladder wall thickness in healthy children. Iranian Journal of Pediatrics. Dec 2009;19 (number 4):341-6.
- 14) Yung J HC. Bladder wall thickness on ultrasonographic cystourethrography: Affecting factors and their implications. J Ultrasound Med. 2003;22:777-82.

