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Functional Outcome on Surgical Treatment For Lower Extrimity Tuberculosis Arthritis At Cipto Mangunkusumo Hospital Jakarta

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Abstract

Introduction: Osteoarticular tuberculosis more frequently occur on weight bearing joints.[1,8] On late stage tuberculosis osteoarthritis choices of surgical treatment involved synovectomy, osteotomy, arthrodesis, and arthroplasy[11] Results on functional outcome after surgery would be useful to decide appropriate treatments and prognosis.

Method: This descriptive analytic study involved all lower extremity tuberculosis osteoarthritis that underwent surgical procedure at Cipto Mangunkusumo hospital in 5 years periods from 2008 to 2012. Follow up performed for minimal 6 months after surgery. Patients were evaluated using Lower Extremity Functional Score (LFES) and functional score according the joints involved, including Harris Hip Score (HHS), Knee Society Score (KSS), and Foot & Ankle Disability Index (FADI). Results: Study only involved late stage cases with average age at surgery was 30.04 (SD 16,67) years old. Average follow-up 33.68 months (SD 18.67). There are significant difference ($p<0.001$) of the LFES between preoperative (27.41), 6 months after surgery (42.19) and on last follow up (63.04). There were also difference ($p<0.001$) on Functional Score (HHS, KSS and FADI) preoperative (27.48), 6 months after surgery (60.11) and on last follow up (82.56). There is positive correlation between time of follow up and LEFS on last follow up. On last follow up, there is also significant difference of LEFS between groups that had arthrodesis and arthroplasty (p 0.045.)

Conclusions: Results of surgical treatment gave significant improvement on functional outcome of the joint involved. The result however is correlated to the type of joints involved, type of surgery performed and the time after surgery.

Introduction

Tuberculosis infection is still one of the major health problems in the world, especially in developing countries. Incidence of tuberculosis has been declining since the era of anti-tuberculosis drugs but in 1985 there's reemergence of the incidence in developing countries.[1]

Osteoartikular tuberculosis or tuberculosis infections in bones and joints are a third, or about 35 % of extra pulmonary tuberculosis infection.[2,3,4] Approximately 3% of all new cases of tuberculosis are osteoartikular tuberculosis.[5,6,7] The spread of tuberculosis in the joints can occur hematogenous through sub-synovial blood vessels as well as directly from osteomyelitis area in epiphysis (in adult) or metaphysis (in children). Tuberculosis arthritis can occur in any joint of the body but are more common in the weight bearing joints such as the hip and sacro-illiac. The incidence followed by the knee, ribs, shoulder, ankle, elbow and wrist. [1.8] Tuberculosis arthritis usually occur monarticular.

Diagnosis in this case is usually late because of the difficulty in diagnosis.[1,7.9] In general management for tuberculosis arthritis based on two basic facts.
First: tuberculosis is an infectious disease that requires pharmacological therapy with

anti-tuberculosis drugs. The next fact is osteoarticular tuberculosis cause consequences in the field of orthopedics and should be treated in accordance to orthopedics principles.

According to orthopedics principles, osteoartikular management for tuberculosis is divided into immobilization, surgery and physical therapy. Surgical goals are to correct the deformity persists after conservative therapy or improve joint function after medical treatment. In addition the use of physical therapy is strongly recommended to be done on each cases.[10] In the early stages of the disease the primary goals of therapy is to maintain normal or near normal range of motion.

In patients with advanced arthritis, the goal of therapy is to keep the joint in a functional position. At joints where ankyolisis can not be allowed, such as hip and elbow joints, excisional arthroplasty procedures can be considered. If joint ankylosis has already occurred in a less than optimal position or there's stiffness in the joints, it can be corrected with release of the soft tissues or also can be done joint reconstruction or arthroplasty. The choice of therapy is usually based on the patient's degree of severity. [1,5,8,10, 11,12]

One classification system that can be used as a guide for arthritis TB therapy was made by Tuli. This classification links clinical and radiological state of patients with treatment options and expected outcomes, and divided into five degrees. In a advanced state of the disease (stage III, IV and V) goals of treatment include management of joint stability and pain and maintain range of motion. Surgery procedure suggested by Tuli includes synovectomy, osteotomy, arthrodesis, and arthroplasty.[11]

Tabel 1. Tuberculosis arthritis according to Tuli classification. [11]

	Clinical	Radiological	Management	Expected outcome
Stage I (synovitis)	1. Soft tissue swelling 2. 75% ROM	1. Soft tissue swelling 2. Osteopenia	1. Drugs 2. Rest 3. ROM 4. Splinting	Normal or minimal symptoms
Stage II (early arthritis)	1. Soft tissue swelling 2. 25-50% loss of ROM	1. Soft tissue swelling 2. marginal erosion of joint 3. joint narrowing	1. Drugs 2. Rest 3. ROM 4. Splinting 5. synovectomy	ROM 50-70%
Stage III (late arthritis)	75% loss of ROM	1. marginal erosion of joint 2. cyst 3.significant joint narrowing	1. Drugs 2.Osteotomy 3.Arthrodesis 4. Arthroplasty	Stable and pain free joints with or without movement
Stage IV (late arthritis)	1. 75% loss of ROM 2. Subluxation or dislocation	Joint destruction	1. Drugs 2.Osteotomy 3.Arthrodesis 4. Arthroplasty	Stable and pain free joints
Stage V (ankylosis)	Ankylosis	Ankylosis	1. Drugs 2.Osteotomy 3.Arthrodesis 4. Arthroplasty	Stable and pain free joints

The results of therapy can be measured based on the patient's perception of the situation known as "soft measures" which is a subjective assessment. Subjective measurement that already validated usually has better reproducibility and more effective to assess the therapy's effectiveness.

Methods

This descriptive analytic study involved all adult lower extremity tuberculosis osteoarthritis that had surgical procedure at Cipto Mangunkusumo hospital in 5 years periods from 2008 to 2012. Follow up performed for minimal 6 months after surgery.

Patients were evaluated using Lower Extremity Functional Score (LFES) and functional score according to the joints involved, including Harris Hip Score (HHS), Knee Society Score (KSS), and Foot & Ankle Disability Index (FADI). Total cases in our center during the intended time were not able to fulfill the required sampling number from calculation therefor we perform total sampling methods. We exclude cases with congenital anomaly that will affect the joint function and cases with secondary infections. All eligible cases from operation-rooms records are compiled, contacted and ask to join the study. If they agree the informed consent, they were asked to fulfilled forms according to the joints involved.

Results

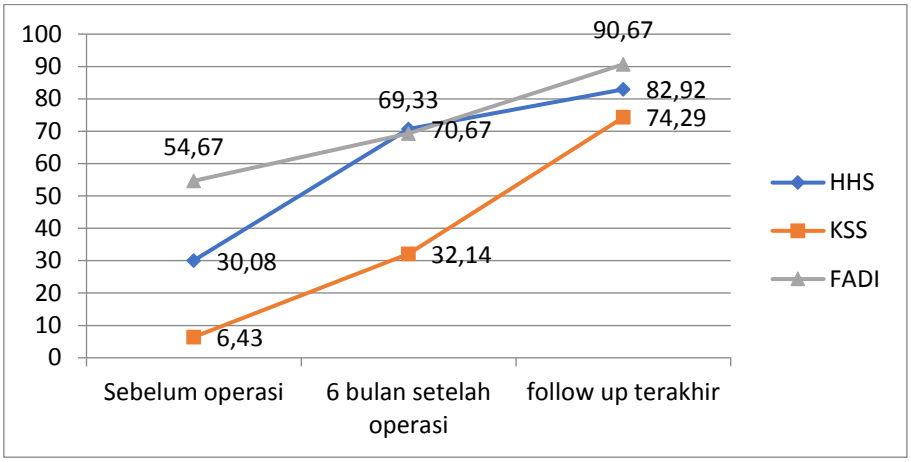
We have 23 cases that matched the inclusion criteria however 7 of them are loss to followup so this study have 22 samples from 16 patients. Average age at surgery was 30.04 (SD 16,67) years old. All cases are followed up for minimal 6 months with average follow-up 33.68 months (SD 18.67).

Table 2. cases characteristic

Characteristic	n (%)
Sex	
Male	15(68.2)
Female	7 (31.8)
Lung tuberculosis	
Positive	12 (54.5)
Negative	10 (45.5)
Tulli classification	
Stage 3	12 (54.5)
Stage 4	10 (45.5)
Joint involved	
Hip	12 (54.5)
Knee	7 (31.8)
Foot and ankle	3 (13.6)
Surgical procedure	
Debridement &	10 (45.5)
sinovektomi	1 (4.5)
Soft tissue procedure	5 (22.7)
Artrodesis	6 (27.3)
Artroplasti	

There Are Significant Difference (P<0.001) Of The Lefs Between Preoperative 27.50 (3-40), 6 Months After Surgery 40.50 (12-76) And On Last Follow Up 68.00 (36-80). There Were Also Difference (P<0.001) On Functional Score (Hhs, Kss And Fadi) Preoperative 30.00 (5-62), 6 Months After Surgery 64.00 (19-98) And On Last Follow Up 83.50 (45-99). Breakdown Of The Functional Score Hhs, Kss And Fadi Didn't Give Significant Difference (P>0.05) But Shows Tendency Of Improvement.

Graphic 1. Specific functional outcome



There are no significant differences between groups of different sexes, involvement of lung tuberculosis and joints type; also no significant difference between different types of joint involved. There are negative correlation between patient's age and LEFS however with p 0.403 this result are not statistically significant. There is also positive correlation between time of follow up and LEFS on last follow up (r 0.385, *p* 0.077) Less severe arthritis tuberculosis would have better functional outcome before (p 0.001) and after surgery (p 0.008). On last follow up, there is also significant difference of LEFS between group that had arthrodesis and arthroplasty (p 0.045)

Discussion

(45.5). This is because the study was conducted in patients with tuberculosis

arthritis who underwent surgical therapy which in turn only includes advanced stage of tuberculosis arthritis (more than stage 3). Histopathology examination was performed after surgery in 11 patients (68.75%), all of which were positive for tuberculosis arthritis. This is one of the functions of the surgery, which is to confirm diagnostik.[10] All subjects received treatment with Anti-Tuberculosis Drug (OAT) for at least 12 months. [10, 44] there is only 1 case of reactivation which is caused by the patient stops taking the OAT.

Type of surgery performed on tuberculosis arthritis include debridement and synovectomy : 10 (45.5), soft tissue procedures : 1 (4.5), arthrodesis : 5 (22.7) and artroplasty : 6 (27.3) . In patients with more advanced stages of this disease, the

In early stages, good results can be achieved with medical therapy without surgery.[13] It explains why more adult patients come to seek treatment. 68.2% of patients were male, there is no literature declares gender predilection on tuberculosis infection in this study. Osteoartikular tuberculosis is a disease that occurs secondary to tuberculosis infection in the lung[10,11] in the study 54.5% of patients had involvement of pulmonary tuberculosis. Involved joints include the hip joint: 12 (54.5), knee: 7 (31.8), ankle and foot: 3 (13.6). This is consistent with the statement of Martini (1988), that the lower extremity joints most commonly affected are the hip joint followed by knee, ankle and foot.[10]

There're only 2 groups based of severity in his study stage 3: 12 (54.5) and stage 4: 10 goal of therapy is to maintain the joint in a functional position . In joints where ankylosis is not well tolerated , such as in the hip joint and knee joint arthroplasty should be considered as choice of treatment.[10,14] Functional outcomes (LEFS) was significantly different before and after surgery ($p < 0.001$) . This confirms the function of surgical therapy in cases of advanced stages of tuberculosis arthritis.

Corresponding with the literatures, there is no significant association between sexes, and involvement of pulmonary tuberculosis with functional outcome. However patient at younger age at diagnosis will have better functional outcomes because arthritis tuberculosis in children can usually recover without sequelae when medical therapy initiated immediately.

Even at advanced stage with appropriate therapy, chance of recovery are quite

great.[13] Longer time after the surgery outcome will increase joint function, especially when supported by pharmacological and rehabilitation programs are good. Although p>0.05 there is an increasing tendency of functional outcomes in correlation with time after follow up.

In this study, no significant difference was found between functional outcome at different joints (hips, knees and ankles and foot) both before and after surgery. This could be due to the number of samples is too little and vast variation between each group of joints. Moreover different joints would have different therapeutic targets .

In this study, from 12 cases of hip tuberculosis, 5 had arthroplasty as second procedure after debridement or arthrodesis, 1 patient had direct arthroplasty, 4 had arthrodesis with a plan for conversion into athroplasy. No reactivation of tuberculosis is found in patients who had Total Hip Arthroplasty either directly or conversion.[10] Traditionally stated that there should be disease-free interval , which is about 10 years, between the completion of medical therapy with orthosis implantation. However, some in vitro studies indicate the absence of biofilm formation on implants in arthrtits tuberculosis and showed good functional outcome studies in the absence of reactivation tuberkulosis.[14] This allows for Total Hip Arthroplasty to be advised in patients with active pelvic tuberculosis . However, at age of 35 years or younger incidence of aseptic loosening and revision ranges between 11-57 % . Therefore , the choice of therapy in adolescents and young adults , among others, is to conduct joint arthrodesis then conversion to a total hip arthroplasty afterward. [14,15]

On tuberculous arthritis of the knee joint at an advanced stage the primary goal is pain free and stable joint, then followed by next priority to achieved near-normal range of motion. Results that considered successful are full extension with a diverse range of motion or stiffness in extension position. [10,16,17]

The tuberculosis in the foot and ankles are the most rare arthritis of the lower extremities . In this study we only found 3 cases (11.1 %). At the ankle, infection will spread rapidly throughout the joints causing deformity. The goal of treatment is to eradicate infection and achieve a pain free foot.

Usually the bone union can occur spontaneously so that goals can be achieved without surgical therapy. In all 3 cases in this study, all underwent debridement and an increase in functional outcomes joints .[15.18]

Mean functional outcome stage 4 significantly lower compared to stage 3 joints either at the time before (p 0.001) or 6 months after surgery (p 0.008) . This is consistent with the statement that a higher degree of severity will make joint function decreases. Therefore it can be suggested that tuberculosis arthritis therapy should be started as soon as possible before the severity of the disease increases .

This study found no significant differences in functional outcome between groups undergoing different procedure at 6 months folow up. This is due to the different joints require different surgical therapies as discussed in the previous section. Furthermore variation in sample size in in each group made statistics calculating difficult to performed. Nevertheless on the long- term follow-up there is a difference in functional outcome between groups who had arthrodesis with arthroplasty (p 0.045), especially for the hip joint . In the hip joint and knee , but especially in the hip joint , ankylosis of joints is not well tolerated , it will be more visible in the long term . Specific statistics calculation for hip arthritis can not be performed because the sample size is too small however group receiving arthroplasty gives better functional outcome.

Limitation of this research is that although this study uses total sampling, sample size was too small and varied between groups, also variations follow-up time. In conclusion this study shows that there is a significant relationship between severity and functional outcomes after surgery. Therefor we suggest surgical treatment to be performed as soon as possible.

There are also significant differences in functional outcome at last follow -up among the group who had arthrodesis and arthroplasty (p 0.045) . This implies that for long-term joint function would be better with arthroplasty especially in hip joint. In this study there also no reactivation cases or other side effects in patients undergoing arthroplasty either direct or convertion which are consistent with recent studies.[15] Those result made us suggest that arthroplasty in patients with active pelvic tuberculosis arthritis are relatively safe and

provide better functional outcomes . However, small sample size in this study, especially when divided by type of joints involved causing the need for further studies with a larger sample size and specific to the joints of the lower extremities in order to provide a therapeutic recommendation.

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Association Between Living With Parents And Not Living With Parents With Psychological Stress In Preclinical Medical Students In University Of Pelita Harapan

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Abstract

Introduction: Stress is a response to stressor that came from the body (internal or external). According to several studies, medical student very evident to experience of stress, which compared to student from other major. In previous studies the level of stress among medical student was 45% – 72%. And lack data that connect stress with domisil in medical student, and one of the reasons for this research. Objective To find an association between domisil and psychological stress in medical students. Material and Methods This research is categorical comparative analytic, with cross sectional as the design study and needed 264 repondent that consis of preclinic medical student of Pelita Harapan University. Taken by questionnaire from GHQ – 12 for the data. Data will be analyzed using Chi – Square in SPSS version 23.

Results: This result showed 43 (41%) students who experiencing psychologic stress and 62 students (59%) students who not experiencing psychologic stress in students who live with their parents. There's also 104 (65.4%) students who experiencing psychologic stress and 55 (34.6%) students who not experiencing psychologic stress in students who don't live with their parents. This research has a significant result with p-value <0.001 that support the hypothesis.

Conclusions: There is an associaton between domisil and psychological stress in preclinic medical student at Pelita Harapan

Introduction

Medical education is the most difficult form of education and has the longest education period compared to all other education majors. Medical education demands a lot of pressure that causes medical student to work harder to meet the demands in completing the education. This constant pressure makes medical students have a high level of stress, which affects the lifestyle of medical students in general.[1] In Kaplan and Saddock, stress itself can manifest in various forms, depending on each individual concerned, and how each individual can respond to the stressors.[2] In the previous research, it was found that the prevalence of stressed students in the world reached 38-70%, while in Asia it reached 39-60% and in Indonesia it was 36-72%. Other studies conducted on medical students who experience stress reaches 45-72%.[3] Lifestyle changes in students in the university environment is one that greatly impacts stress.

One of them is a place to stay in which living with parents or not is an important determinant. That is due to changing learning patterns, the environment, and the need to adjust to the lecture environment such as a very tight schedule. Psychosocial stress factors experienced by students who do not live with parents tend to increase due to the adjustment to the new environment and the existence of a new lifestyle as well, and those who live with parents can get full support. [4] Boarding houses are an alternative place to live for students who come from out of town, and many types of housing for students to live in, such as apartments, rental homes, and dormitories. Based on the description above, the researcher wants to do this research to find out whether there is a relationship between a place to live with parents and not with parents with psychological stress.

Material and Methods: This research is categorical comparative analytic, with

cross sectional as the design study and needed 264 repondent that consis of preclinic medical student of Pelita Harapan University. Taken by questionnaire from GHQ – 12 for the data. Data will be analyzed using Chi – Square in SPSS version 23.

Results

There are 264 participants who fulfilled the inclusion and exclusion criterias for this study. Demographic data is shown in table 1.

Table 1. Distribution of Demographic Data

Category		Frequency (n)	Percentage (%)
Sex			
	Male	97	36,7
	Female	167	63,3
Batch			
	2016	170	64,4
	2017	75	28,4
	2018	19	7.2

There are 97 (36,7%) male students and 167 (63,3%) female students and there are 170 (64,4%) students from batch 2016, 75 (28,4%) students from batch 2017 and 19 (7,2%) students from batch 2018 that are included in this study.

Table 2. Association Between Places of Stay and Psychological Stress

Variable	Psychological Stress	No Psychological Stress	Total	PR (95% CI)	*p - value*
Living With Parengs	43 (41%)	62 (59%)	105 (100%)	2,726 (1,640 – 4,531)	<0,001
Not Living With Parents	104 (65,4%)	55 (34,6%)	159 (100%)		
Total	147 (55,7%)	117 (44,3%)	264 (100%)		

Result *Chi Square* with SPSS v.23 shows that there is an association between places of stay and psychological stress as can be seen from table 2. There are 147 subjects that suffer from psychological stress in which there are 43 (41%) students who live with their parents and 104 (65,4%) students who don't live with their parents. There are also 117 participants who don't suffer from psychological stress and 62 (59%) students that live with parents and 55 (34,6%) students that don't live with parents. After analysis with *Chi Square,* with PR value of 2,726 with 95% CI 1,640 – 4,531 which means students who don't live with parents are 2,7 times more stressed compared with students who stay with parents with p-value of <0,001 , which concludes that there is an association between places of stay and psychological stress.

Table 3. Summary of Results of Statistical Analysis of Independent and Dependent Variable Using Multivariate Study, Confounding Factors that affect Psychological Stress.

Independent Variabel	B	S.E.	*P – Value/ sig.*	Wald	PR	95% CI	Remarks
Sex	**0,065**	**0,061**	**0,8**	**0,061**	**1,067**	**(0,635 – 1,794)**	**No association**
Batch	**0,005**	**0,205**	**0,9**	**0,001**	**0,995**	**(0,665 – 1,488)**	**No association**
Places of stay	0,999	0,260	<0,001	14,733	0,368	(0,221 – 0,613)	Association

Table 3 shows that PR / *prevelance ratio* for places of stay is 0,367 which means students who live with parents are 0,367 times not stressed compared with students who don't live with parents. In this covariat, sex and batch have no association with psychological stress.

Discussion

Based on the results of a research conducted at University of Pelita Harapan in the department of Faculty of Medicine in April which included 264 respondents including preclinical students. Chi Square correlation is used for analysis due to the associated variables are nominal and nominal. In this study the results showed p-value <0.001 which showed significant results.

This study shows things that are in line with previous studies, conducted at the University of Muhammadiyah Palembang in 2015, where the results of the study found that students who live with parents are less stressed than students who do not live with parents.[5] This research differs from research conducted at Andalas University in Padang in 2016, showing that living with parents is more stressful than students who live alone, it could be due to demands from parents.[6] However, a research conducted in India, states that dwellings do not have a significant stress level, this is due to differences from each individual in dealing with existing stressors. Students who think that a place to live is not bad.[7]

From these three journals, there are differences in the results of the relationship between psychological stress and the place of stay, because the situation and conditions in Palembang, Padang, India and in Lippo Karawaci are all different. Because in addition to housing, there are still many other factors that influence psychological stress such as internal problems such as, where students who do not live with parents have to adjust to the new environment and are required to live independently such as managing money, buying food, or managing study time and lack of support from parents. Those who live with parents have many ways to reduce stress, such as receiving direct affection from parents in the forms of encouragement, and does not require much time for adaptation, and this can reduce the pressure.

The results of this research analysis show that students who do not live with parents have a higher stress level than students who live with parents. Confounding factors such as sex and batch have no influence in psychological stress.

Conclusion

From the results of this study, it can be concluded that based on the prevalence ratio / PR that students who do not live with parents are 2,726 times more stressed than students who live with parents. Of the 264 samples, there were 105 students who lived with parents and there were 159 students who lived not with parents. There were 43 (41%) students who experienced psychological stress and 62 (59%) students who did not experience psychological stress in students living with parents. And there are 104 (65.4%) students who experience psychological stress and there are 55 (34.6%) students who do not experience psychological stress in students who do not live with parents. This study has a significant result because the p-value obtained is <0.001 which supports the hypothesis of this study.

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Intradialytic Hypertension in End Stage Renal Disease patient : Prevalence and clinical characteristic

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Abstract

Introduction : Intradialytic hypertension (IDH) is common and it increases the incidence of cardiovascular morbidity and mortality, however this is often ignored. The aim of this study is to identify the prevalence of IDH and compare the clinical characteristics of patients with and without IDH.

Methods : A cross sectional study was carried out in 3 hemodialysis clinics in Jakarta, Indonesia. We compared several clinical characteristics inpatients with IDH and control group without IDH. Nutritional status was also assessed using Subjective Global Assessment (SGA). IDH was defined as >10 mmHg increase in systolic blood pressure (BP) in at least four of six prior consecutive hemodialysis sessions. Student's T-test or Mann-Whitney test was used to compare the quantitative variables. Chi-Square or Fischer exact test was used to compare categorical variables.

Results : A total of 114 patients was included in this study. There were 86 (62.3%) male patients. IDH was present in 47 (34.1%) patients. The mean age in IDH and control group were 53.4 (±13.2) and 52.8 (±12.4) years respectively (*p*: 0.800). The mean BMI of IDH and control group were 21.8 (±3.7) and 24.0 (±4.4) kg/m^2 respectively (*p*: 0.031). The mean MAP during dialysis of IDH and control group were 108 (±13.1) and 98.6 (±23.2)mmHg respectively (*p*: 0.011). The median creatinine levels of IDH and control group were 8.1 (3.02-22.20)mg/dl and 10.8 (2.89-22.0)mg/dl respectively (*p:* 0.008). Interestingly, moderate to severe malnutrition status had significant association with IDH (OR: 2.31, p: 0.031). Patients who undergo dialysis thrice a week was associated with IDH rather than patients who undergo dialysis twice a week (OR: 2.27, *p*: 0.035).

Conclusion : The prevalence of IDH is higher than previously reported in other countries. The clinical characteristic of patients with IDH is lower BMI, higher MAP and lower creatinine levels than in patient without IDH. Moderate to severe malnutrition and frequency of dialysis per week had significant association with IDH.

Introduction

The phenomenon of blood pressure (BP) rise during or immediately after hemodialysis which result in post dialysis hypertension is recognized for several years but it often largely ignored. There are no accepted criteria to define intradialytic hypertension (IDH).[1] In some studies, intradialytic hypertension was defined as rise in mean arterial pressure >15 mm Hg within or immediately post dialysis.[2] In others, a lower threshold was applied (>10 mm Hg increase in systolic pressure)[3,3] and in some an inclusive definition was adopted (BP rise of any degree during the second or third intradialytic hour).[5] Other definitions include increasing intradialytic BP that remains unresponsive to volume withdrawal and worsening of pre-existing hypertension or new-onset hypertension after administration of erythropoietic-stimulating agents (ESAs)[6]

Intradialytic hypertension occurs more frequently in patients who are older, have lower dry weights, are prescribed more antihypertensive medications, and have lower serum creatinine. Being often ignored, intradialytic hypertension has

been reported associated with adverse outcomes. Recent studies have demonstrated intradialytic hypertension to be independently associated with higher hospitalization rates and decreased survival. In other report, intradialytic hypetension has been suggested to associated with vascular event and metabolic disorders such as inflammation and chronic uncorrected metabolic acidosis.[7]

Pathophysiology of intradialytic hypertension is uncertain, it is likely multifactorial and includes subclinical volume overload, sympathetic overactivity, activation of the renin angiotensin system, endothelial cell dysfunction, specific dialytic techniques, the use of erythropoietin stimulating agents, removal of antihypertension medication and vascular stiffness.[8]

In this study we examine the prevalence of intradialytic hypertension in end stage chronic disease population, for as far of our knowledge no research has been performing for evaluating this in Indonesia and we also assessing the clinical characteristic of patients with intradialytic hypertension and without intradialytic patient in end stage chronic kidney disease.

Method

This is a cross sectional study, carried out in 3 hemodialysis clinic in Jakarta. The inclusion criteria is hemodialysis patient on regular basis (2 or 3 session per week), at least 18 years old and
agreeing to participate in the study. We compared characteristic such as age, gender, MI duration of hemodilaysis, hemoglobin, hematocrit, ureum, creatinin, sodium, potassium, calcium, uric acid, ferritin, erythrocyte, iron, total cholesterol, MAP, dry body weight, frequency of dialysis per week, nutritional status and difference in pre-post dialysis weight in patient with IDH and control group without IDH.
The BP measurement of patients before the hemodialysis session were measured in the supine position after five minutes of rest, right before connecting the patient, and those of the end of session. BP was measured after the extracorporeal blood circuit was restored. The measurements were carried out by dialysis technicians or nurses, using an electronic BP machine of the OMRON® type.

We calculate the difference between pre-dialysis and post dialysis SBP, mean pre and post dialysis pulse, pre and post dialysis heart rate and IDWG. IDH was defined as >10 mmHg increase in systolic BP in at least four to six prior consecutive hemodialysis session. We also collect data the characteristic of the patient include age, gender, BMI, duration of hemodialysis, hemoglobin, hematocrit, ureum, creatinin, sodium, potassium, calcium, uric acid, ferritin, erythrocyte, iron, total cholesterol, MAP, dry body weight and frequency of dialysis per week. All these data was collected using direct anamnesis and medical record. The patient's nutritional status were assessed using Subjective Global Assesment (SGA).

Statistical analysis

We used T-test or Mann-Whitney test to compare the quantitative variables. Chi square or fischer exact test was used to compare categorical variables. The threshold of significance was for $p \leq 0.05$

Result

There was a total of 114 patients included in this study. IDH was present in 47 (34.1%) patients. The baseline characteristic of the patients are shown in table 1. The mean age of the patients was 52.8 years (±12.5) and male is 75.4%. The duration of hemodialysis was 38.6 (±36.2) months. The etiology of CKD is hypertension 59.6%, hypertension 59.8% and others 9.6%. The mean BMI was 22.9 (±4.4) kg/m2. Normal nutritional status according to SGA 48.6%, moderately malnourished 43.9% and severe malnourish 7.9%.

Table 1

Baseline characteristic	
Age (years) [mean SD]	52.8 (±12.5)
Duration of hemodialysis (months) [mean SD]	38.6 (±36.2)
BMI (kg/m2) [mean SD]	22.9 (±4,2)
Gender	
Male	86 (5.4%)
Etiology of CKD	
Diabetes	35 (30.7%)
Hypertension	68 (59.6%)
Others	11 (9.6%)
Diabetes	43 (37.7%)
Hypertension	88 (77.2%)
Subjective Global Assesment	
Normal	55 (48.2%)
Moderately Malnourished	50 (43.9%)
Severely Malnourished	9 (0.9%)

The comparison between IDH and non IDH group was seen in table 2. Patient who undergo dialysis thrice a week was associated with IDH rather than patient who undergo dialysis twice a week with OR 2.27 and p 0.035. And interestingly the nutrition status was associated with IDH when moderate to severe malnourished had OR 2.31 than normal nutrition with p 0.031. Patient with IDH had lower BMI and lower serum creatinin level compare to non IDH.

Table 2

Variable	IDH group	Control group	p
Age (Mean[SD])	54.4 (±13.2)	52.8 (±12.4)	0.800
BMI (Mean[SD])	21.8 (±3.7)	24 (±4.4)	0.031
Gender			
Male	29 (61.7%)	43 (62.4%)	
Female	18 (38.3)	24 (35.8%)	
Duration of HD (Median[Min-Max])	24 (2-192)	30 (6-96)	0.136
Frequency of HD			0.035
3 times/week	25 (53.2%)	22 (33.3%)	
2 times/week	22 (46.8%)	44 (66.7%)	
Hemoglobin (Mean[SD])	8.6 (±1.7)	8.3 (±1.5)	0.299
Hematocrit (Mean[SD])	26.5 (±5.6)	27.4 (±5.2)	0.380
Ureum (Mean[SD])	122.5 (±52.2)	146.1 (±135.4)	0.219
Creatinin (Median[Min-Max])	8.1 (3,0-22.2)	10.8 (2.9-22.6)	0.008
Potassium (Mean[SD])	7.3 (±11.9)	5.4 (±4.9)	0.355
Calcium (Mean[SD])	8.9 (1-13)	8.5 (0.9-11.1)	0.559
Uric acid (Mean[SD])	5.6 (±2.2)	11.1 (±21.4	0.184
Ferritin (Mean[SD])	314.2 (±462.3)	611.7 (±478.6)	0.111
Erythrocyte (Mean[SD])	1.29 (±1.65)	1.23 (±1.58)	0.834
Iron (Median[Min-Max])	43.5 (3.84-103)	66.0 (12-25.8)	0.160
Total cholesterol (Mean[SD])	194.0 (±86.6)	175.1 (±71.6)	0.578
Mean Arterial Pressure (Mean[SD])	108.3 (±13.1)	98.6 (±23.2)	0.011
Dry body weight (Mean[SD])	59.5 (±13.4)	61.7 (±14.5)	0.435
Subjective Global Assesment			0.031
Moderate to severe malnutrition	30 (63.8%)	29 (43.3%)	
Normal	17 (36.2%)	38 (56.7%)	

Table 2. Present the characteristic of patient with IDH and factor associated with IDH compare to control which is BMI, duration of hemodialysis, serum creatinin level and moderate to severe malnutrition.

Discussion

The prevalence of IDH in our study is 34.1%. It was higher than that of the CLIMB study [9] as well as the WAVE 2 study[10] , which reported respective prevalence rates of 13.2% and 12% The noted prevalence of IDH in our study was alarming, as it is currently considered a risk factor for cardiovascular mortality.[11] Inrig et al. noted an increased risk of hospitalization and death at 6 months in patients who had an increase in BP by 10 mmHg during the hemodialysis session as compared to the patients whose BP decreased during the hemodialysis session.[12]

Post-dialysis SBP was also more significantly correlated with the ambulatory inter dialytic BP than pre-dialysis.[13] Its management is necessary and can be facilitated through the adequate management of the blood volume with the estimate of an ideal weight, individualization of hemodialysis parameters, and use of modules for retro control of ultrafiltration. It is also necessary to identify such associated factors to support them optimally.

To obtain a good BP control in dialysis patients, we must define the correct dry weight and individualize the adequate sodium concentration in dialysate, thus to achieve a zero intradialytic sodium balance.[13] Elevated sodium removal may be due to our trying to reach a dry weight lower than the correct one, which may have, as a consequence, intradialytic hypotensive episodes and muscle cramps, which can lead to the need for an increase in dialysate sodium concentration, thirst, and eventually greater interdialytic weight gain causing as a final result an ECV increase and hypertension.[14] Such a phenomenon is particularly exciting when a lower urine volume is combined, such as in our subjects with intradialytic hypertension.

In our study, factors that could influence the increase in SBP during the hemodialysis session were BMI, duration of hemodialysis, serum creatinin level and moderate to severe malnutrition. Other studies have reported that intradialytic hypertensive patients were older and had lower values of serum creatinine and lower dry weight that similar to our result. That may be explained by our studies that these patients are more likely to be malnourished and generally consume more liquids. In addition to this assumption is the fact that intradialytic hypertensive patients have statistically significant lower values of serum sodium, and accordingly, larger and statistically significant gradient of sodium compared to the control group, leading to an increase in serum sodium during dialysis (positive sodium balance) which probably stores in the interstitium as osmotic inactive sodium, leading to salt–sensitive hypertension, which is confirmed by other studies. The positive sodium gradient increases thirst, leading to increased fluid intake and extracellular volume expansion and subsequent development of hypertension. The increase in the mean arterial pressure and systolic pressure during and after hemodialysis is probably associated with the impaired endothelial function and increased secretion of endothelin-1 and increased peripheral resistance, and can occur without significant changes in cardiac stroke volume. Clinical characteristics associated with intradialytic BP rise include lower body weight, lower serum creatinine. Lower creatinine levels may contribute to small reductions in osmolarity during dialysis and this prevents the blood pressure from falling.

Malnutrition has already been reported as specific cardiovascular risk factors for dialysis patients and each of the malnutrition, inflammation, and atherosclerosis (MIA syndrome) components worsens the survival of these patients. Malnutrition may be related to metabolic acidosis due to increased protein catabolism, decreased protein synthesis, endocrine abnormalities, and inflammation among dialysis patients. Metabolic acidosis defined by low serum bicarbonate (<22 mmol/L) is a common condition in end stage renal disease patients resulting in inflammatory stimulation, lipids oxidation, and oxidative stress. Maintenance dialysis therapies are often unable to completely correct the base deficit. Previously, the association of uremic acidosis with arterial pressure has been reported in hypertensive patients.

The limitation of this study: Small number of participants, no assessment of intradialytic sodium balance, and the blood pressure is not measured during the interdialytic period by 24-hour ABPM

Conclusion

The prevalence of IDH is higher than previously reported in other countries. The clinical characteristic of patients with IDH is lower BMI, higher MAP and lower creatinine levels than in patient without IDH. Moderate to severe malnutrition and frequency of dialysis per week had significant association with IDH.

Disclaimer

The abstract of this study has been presented in 55th ERA EDTA congress in Copenhagen Denmark on May, 2018.

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Perforation Of Descending Colon Caused By Tumor Infiltration : A Case Report

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Abstract

Introduction: Colorectal cancer is one of the most common cancer found in the gastrointestinal tract. This tumor is less commonly found on the descending part of colon and about 15 - 30 % can progress to obstruct the passage of the colon and invade other organs and may cause perforation which may show sign of peritonitis. The majority of perforation cases occur in patients with acute obstruction, only in a rare setting of colonic cancer cases due to penetration of the tumor mass through the intestinal wall. Clinical Presentation: A 34-year-old male came with pain on his whole abdomen area for 1 day and keeps on getting worse. On clinical examination There were sign and symptoms of peritonitis and during emergency laparotomy, we found perforation on descending colon caused by tumor infiltration and performed Left Hemicolectomy and Stoma at emergency settings.

Conclusion: Perforation of descending colon caused by tumor infiltration is a rare case, Left hemicolectomy and stoma shows good results in emergency settings.

Introduction

Colorectal cancer is one of the most common cancer found in the gastrointestinal tract. This tumor is less commonly found on the descending part of colon and about 15 - 30 % can progress to obstruct the passage of the colon and invade other organs and may cause perforation which may show signs of peritonitis.[1]

Cancer development on left-sided colon can cause obstruction where the lumen of the colon is smaller than that of its counterpart on the right. The primary symptom is a change in bowel habits, but perforation could also be caused not only by bowel obstruction, but also by penetration of the tumor.[2]

The majority of perforation cases occur in patients with acute obstruction, only in a rare setting of colonic cancer cases due to penetration of the tumour mass through the intestinal wall. The emergency operation is mandatory if we find sign of peritonitis caused by bowel perforation, but performed bowel anastomosis or stoma may sometimes be a challenging decision for a surgeon.[1,3]

Case Presentation

A 34-year-old male came with an intermittent pain with a scale of 7 out of 10 on his whole abdomen area for 1 day and keeps on getting worse. There was a pain on his right lower quadrant about 1 weeks ago. The pain was not alleviated by any medication or activity.

The patient did not mention anything about nausea, vomiting, and fever. However, the patient stated that he had been having a dark color stool without any bloodstain or feeling of blood dropping. There was no

difficulty in defecating, such as pain, constipation, diarrhea; and micturition was in normal range. On physical examination, Body Mass Index was 22.7 Kg/m^2, his conjunctivas were pale, and on abdominal examination showed that he had a decreased bowel sound, hypertympanic and pain on all region of abdomen during percussion, tenderness on palpation in all region and muscular rigidity. The blood test showed that the patient had hypochromic microcytic anemia with hemoglobin content of 5.7 g/dl , leukocytosis of 15.350 / mm^3, and there's also an increase in ESR.

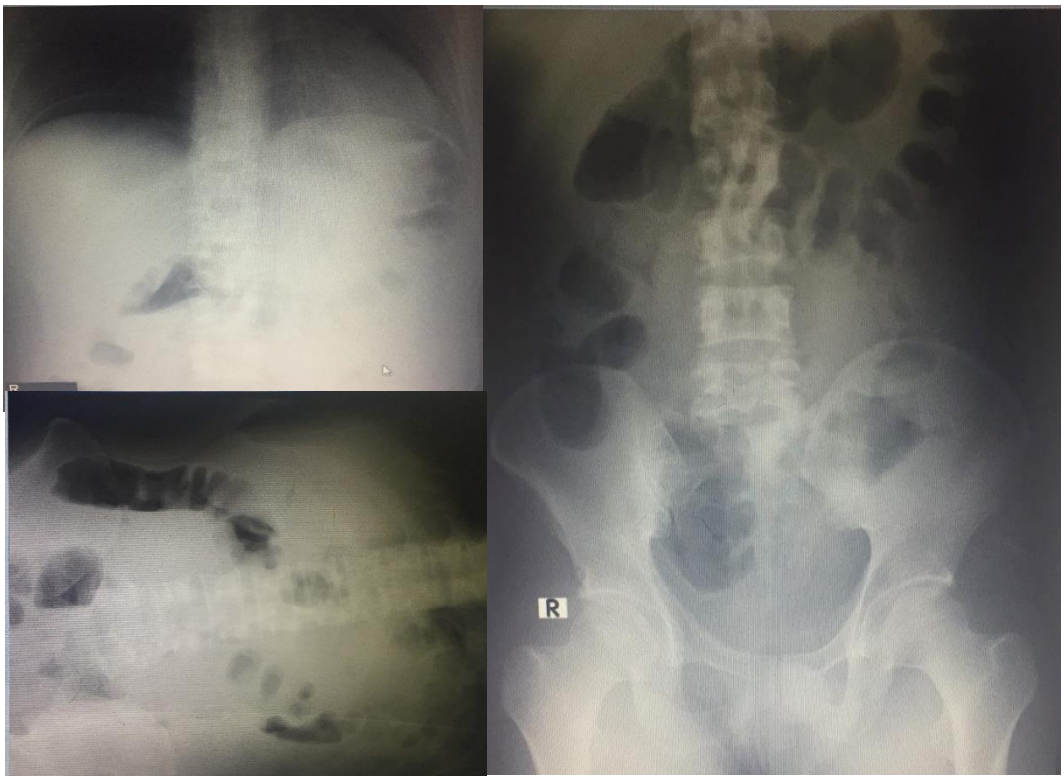
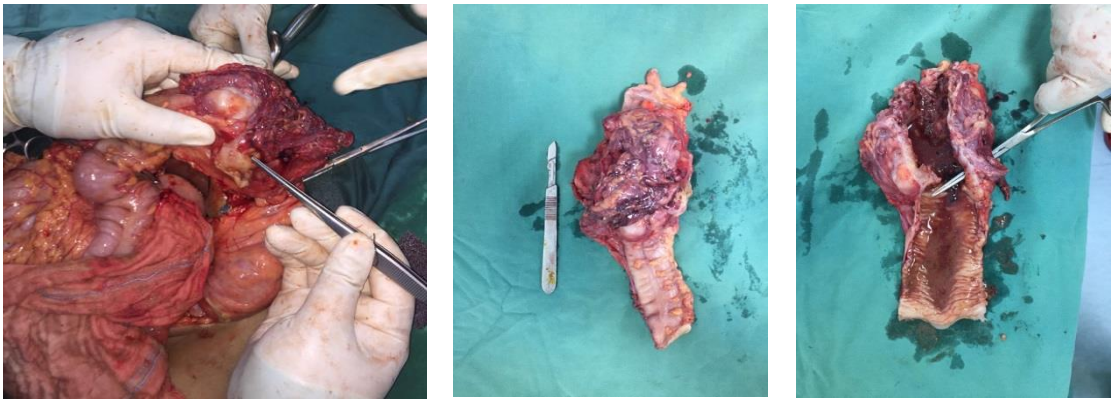


FIGURE 1. Radiographic 3 Way Abdominal X-RAY
The radiographic picture reveals free air in the right sub diaphragmatic that increases in the left lateral decubitus.. there is ground glass appereances, Intestinal air reaches distally. There is Pneumo peritoneum

During the surgery we found that the abdomen cavity was filled with a ± 300 cc of yellow colored fluid mixed with faeces and also a mass on left descending colon with a size of ± 10 x 9 x 6 cm, solid, define border, and attached to the lateral wall of peritoneum. A perforation with diameter 1 cm and was showed on the

antemesenterial at a tumor site with an obstructed lumen. It was the confirmed that the patient was suffering from diffuse peritonitis caused by a perforation on the left descending colon by an infiltration of a tumor (showed in figures 2 (1)), we performed left hemicolectomy with a full laparotomy, mobilized the left colon and sigmoid by dividing The lateral peritoneal reflection along the outer edge (white line of *Toldt*).
Care was taken to identify and preserve the left ureter and left gonadal vessels. The mobilization extends from below to up around the splenic flexure along the gastrocolic ligament. The greater omentum was freed off the transverse colon, to the left side of the middle colic artery arcade, after gaining a window into the lesser sac. Mesocolic windows were opened and The left colic arteries were identified, divided and suture ligated. The inferior mesenteric vein was ligated before mobilizing the tumor to prevent tumor emboli. The left transverse and distal descending colon were divided by using a scalpel. The mesocolic defect was then closed.
There was 1 lymph node enlargement at marginal lymph node about 2 x 1 x1 cm are included on resection.
A stoma was performed with *Mikulicz* technique with the proximal of the colon placed laterally and the distal end placed medially. Histopathological findings showed a proliferating cell with

pleomorphic, hyperchromatic center, with abnormal mitotic and hyperplasia of 22 lymph node, there also serosa infiltration hence confirming the diagnosis of mucinous adenocarcinoma; with free tumor margin in both end of large bowel.



(1) (2) (3)

FIGURE 2. (1) location of left descending colon perforation; (2) after left hemicolectomy; (3) Perforation of tumor on left descending tumor

Post – operative management

The man remained intubated and was transferred to the HCU. Ceftriaxone and Metronidazole were added as the HCU team was concerned about contamination from large bowel perforation. After 24 hours, he was transferred to the surgical ward. Stoma looks vital, with small amount of production. The man was discharged after 5 days of hospitalization. The patient was given chemotherapy by a haematooncologist with FOLFOX (Oxliplatin – Folinic Acid – 5 Fluorouracil) about 6 times. CEA result after operation was 2.75 ng/dl (0 – 5 ng/ml). After 7 month we performed stoma closure and the patient was discharged on 6th day with good condition.

Discussion

Colorectal carcinoma is the most common malignancy to be found in the gastrointestinal tract. Every year, there are over 140.000 new cases are diagnosed in United State and more than 50.000 patients die. The incidence is equally found in both sexes[3]. *Banaszkiewicz et al* found the perforation most frequently occurred in patients with the cancer tumor localized in the left part of the colon (8.52%)[4], Different from *Fujisaki et al*. where the highest number of tumors (77%) os in the sigmoid colon and rectum[5]; however, data from *Ghazi et al*. stated that there was no difference in the incidence of this complication based on the location of the tumor[6]. Perforation of colon cancer comprises 3–10% of the initial presentation of colon cancer. This case is still rare because perforation from colorectal cancer usually occur in caecum caused by closed loop obstruction, but in this patient it was caused by infiltration of tumor on large bowel walls.[1]

Based on the TNM staging of colorectal cancer by AJCC (*American Join Committee of Cancer*) this patient tumor size was T4a since the tumor penetrates through the surface of the visceral peritoneum, N0 as there are no lymph node metastasis and M0 for no distant metastasis. Hence the patient is at stage IIB.

Treatment in this patient was in accordance with the guidelines of NCCN (*National Comprehensive Cancer Network*) where tumors which causes perforation should be resected along with the intestine. In this case, left hemicolectomy was performed and consideration of stoma is due to local and systemic conditions. The principal resection should remove both the primary tumor with its lymphovascular supply. If any of the adjacent organs such as omentum is involved, then resection of it should be done. The patient was considered to be at stage IIB colorectal cancer without lymph node metastasis, so there was a significant high risk because of poorly differentiated cancer and local perforation. The adjuvant chemotherapy should be routinely given.[8]

The histopathological result of the tumor was mucinous adenocarcinoma, which, according to the study *Chen JS et al*., although the prognosis for patients with mucinous adenocarcinoma was poorer than for those with Non mucinous adenocarcinoma, it has no significant difference because of the higher proportion of advanced stage tumors rather than the histology.[9]

Based on literatures, the mortality rate in patients with colorectal carcinoma with intestinal perforation is higher than patient diagnosed with colorectal carcinoma in elective surgery, which ranges from 6% to 15% . In contrast, the mortality rate at the same level in studies by *Zielinski et al*. and *Abdelrazeqa et a*l. *Banaszkiewicz et al* report the mortality rate was significantly higher (9.09% vs. 1.83%) in patients undergoing surgery due to perforation. In contrast, long-term survival in both groups of patients undergoing surgery was not significantly different.[4,10,11]

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Use of Fluconazole in Pulmonary Mycosis : A Case Report

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Abstract

The diagnostic criteria for pulmonary mycosis are long-term use of invasive medical devices, long-term use of broad-spectrum antibiotics and corticosteroids, lung infiltrate images with unfavorable fever after adequate antibiotic treatment, an increase in eosinophil count. Should be considered during patients undergoing hospitalization, from the beginning the antifungal that fluconazole can be used. Fluconazole is recommended for candida infections by the FDA because it is safe, fewer side effects and better tolerated than other antifungal classes.

Introduction

Infectious disease is one of the major health problems in Indonesia, including fungal infections or mycoses. Pulmonary mycosis is a pulmonary disorder caused by fungal infection / colonization or a hypersensitive reaction to the fungus. More cases of fungal infections are found, due to increasingly advanced examination techniques. In addition, although no definitive data was found about the increase in the number of patients with pulmonary mycosis, it can be suspected that the number of cases of pulmonary mycosis is increasing due to an increase in acute immunodeficiency syndrome and malignancy. Other predisposing factors are the use of corticosteroid, immunosuppressive, cytostatistic drugs. Pulmonary mycosis occurs in two conditions, namely chronic lung disorders and immunocompromised conditions. Lung diseases that are at high risk of causing pulmonary mycosis are malignancy, pulmonary tuberculosis with extensive lung damage such as cavity, asthma, chronic obstructive pulmonary disease (COPD), bronchiectasis, and immunocompromic post-chemotherapy conditions or long-term corticosteroid use.

Acute immunodeficiency syndrome is one of the triggering factors for pulmonary mycosis. Fungal lung disease (lung mycosis) includes systemic mycosis.
The most common lung mycoses are aspergillosis, candidosis, cryptococcosis and histoplasmosis. Clinically, the symptoms of pulmonary mycosis vary greatly, from asymptomatic to severe symptoms that can cause death.

The main symptoms that are often found in the form of cough, chronic cough with phlegm, sometimes shortness of breath, coughing up blood, chest pain, and fever.

On physical examination, pulmonary mycosis is difficult to distinguish from other pulmonary diseases, depending on the anatomic abnormalities that occur in the lung. Investigations to diagnose pulmonary mycoses include radiological examinations, certain clinical laboratory examinations, and mycological examinations. Chest X-ray images of most pulmonary mycoses show no characteristic, interstitial infiltrates, consolidations, multiple nodules, cavities, pleural effusions can be found. A typical picture can be seen in aspergilloma, which is a fungus ball in the cavity on chest X-ray examination. A routine laboratory result that may be related to pulmonary mycosis is an increase in the number of eosinophil cells. [1,2]

Fluconazole is a fluorinated bis-triazole with new pharmacological properties. This drug is absorbed completely through the digestive tract without being affected by food or gastric acidity. Plasma levels after oral administration are the same as plasma levels after intravenous (IV) administration. This drug is spread evenly into body fluids as well as sputum and saliva. Levels in the spinal fluid 50-90% plasma levels.

Peak levels of 4-8 mcg are reached after 100 mg of administration. The elimination half-life is 25 hours while the excretion through the kidneys exceeds 90% renal clearance. The recommende d dose of fluconazole is 100-400 mg per day orally, IV in formulas containing 2 mg / ml.

Gastrointestinal disorders are the most common side effects. In patients with AIDS found urticaria, eosinophils, Steven Johnson syndrome, impaired liver function and thrombocytopenia. Plasma levels of phenytoin and sulfonylurea will increase in usage with fluconazole, on the contrary there will be a decrease in plasma levels of warfarin and cyclosporine. Fluconazole is useful for preventing relapse of meningitis caused by Cryptococcus in AIDS patients after treatment with amphotericin B. This drug also effective for the treatment of mouth and throat candidiasis in AIDS patients. Fluconazole is indicated for systemic candida fungal infections such as pulmonary mycosis while itraconazole and voriconazole for mucosal candida infections such as candida infections in the oropharynx. [3,4]

Discussion

Patients Mr. .G, 61 years old, was diagnosed with type II respiratory failure with a history of decreased consciousness. Diagnosis of type II respiratory failure based on the results of Blood Gas Analysis (ABG) found a decrease in levels of paO2, an increase in levels of paCO2 and hypokalemia, decreased consciousness was not found again at the first day of follow-up. Patients had previously been treated in the ICU for the past 1 month for 12 days, diagnosed with Nosocomial Pneumonia, Hospital Acquired Pneumonia (HAP) with Systemic Inflammatory Response Syndrome (SIRS) based on history of being treated by ICU, body temperature more than 38.8 degrees Celcius , purulent discharge , leukocytosis, accompanied by severe coughs , fever and rhonchi. SIRS criteria are marked by two or more symptoms, namely body temperature> 38 C or <36 C, heart rate> 90x / minute, respiratory frequency> 24x / minute, leukocyte count> 12,000 / mm3 or <4000 / mm3, on patients all SIRS criteria are found. According to the American Thoraric Society (ATS) the initial empiric antibiotic therapy for nosocomial history of smoking, chronic cough and productive sputum, physical examination found shortness of breath with respiration pneumonia given is betalactam or cephalosporin generation 3 or fluoroquinolone respiration. Therefore patients get levofloxacin which is then on the 7th day combined with meropenem for 5 days because there are indications of a risk factor for Multi Drug Resistant (MDR), the combination is accordance to ATS recommendations. Combination antibiotic therapy according to ATS is cephalosporin or carbapenem or betalactam group plus fluoroquinolone or aminoglycoside group.

Sputum culture results identified Pseudomonas aeroginosa as a pathogenic germ. Sensitivity test results showed resistance to ampicillin, cefasolin, ceftriaxone, gentamycin, ciprofloxacin, levofloxacin, trim-sulfamethoxazole, amikacin and meropenem; sensitive to piperacillin, tazobaktam, cefepime. Results identified by Psedomonas aeroginosa as a specific pathogenic germ and resistant to levofloxacin and meropenem but sensitive to tazobactam and cefepime. Piperacillin is still combined with resistant antibiotics with levofactin combined with levofactin.

Recurring pulmonary TB is still a differential diagnosis in this patients condition because there are respiratory symptoms such as coughing, tightness plus night sweats, although the BTA sputum examination is negative, but the suspicion is still not completely ruled out.

The presence of fever in the patients indicates that inflammation is taking place in the body, possibly infection. A history of use of Anti-Tuberculosis Drugs which shows that patients have had TB reinforces the likelihood of pulmonary mycosis, because the risk of infection increases if there are lesions in the lungs before. A chest X-ray showing a consolidated in the right lung apex is doubtful, so a CT scan is needed but it is not done. The results of culture fungal test confirmed the diagnosis of pulmonary mycosis due to the uncountable number of candida albicans fungus colonies. Fungal colonies occur on the use of broad-spectrum antibiotic therapy for more than 2 weeks and corticosteroids for 3 weeks. According to the authors the administration of methylprednisolone to patients was suspected of having COPD, suspected COPD based on history taking and physical examination, history taking was a > 20x / minute and crackles. Methylprednisolone to reduce exacerbations in COPD.[5,6]

According to Indonesian Society of Respirology (ISR), pulmonary mycosis in patients are similar to those of lung Fever, cough, shortness, etc. need to be aware of as symptoms of pulmonary mycosis in patients with the following conditions:

1. Patients who have immunosuppressed conditions (severe neutropenia, blood malignancy, organ transplantation or chemotherapy)
2. Long-term use of invasive medical devices
3. Patients with immunocompromised conditions due to long-term use of broad-spectrum antibiotics, corticosteroids and immunosuppressed drugs
4. Chronic diseases such as thoracic malignancy, COPD, bronchiectasis, cirrhosis of the liver, renal insufficiency, diabetes
5. Infiltrates in the lungs with fever that does not improve after administration of adequate antibiotics with or without adenopathy
6. Patients with skin mycosis manifestations in the form of erythema nodosum lesions in the lower extremities especially in certain fungal endemic areas
7. Patients are exposed or after traveling to certain fungal endemic areas.

On physical examination, pulmonary mycosis is difficult to distinguish from other pulmonary diseases, depending on the anatomic abnormalities that occur in the lung. Investigations to diagnose pulmonary mycoses include radiological examinations, certain clinical laboratory examinations, and mycological examinations. Chest X-ray images of most pulmonary mycoses show no characteristic, interstitial infiltrates, consolidations, multiple nodules, cavities, pleural effusions can be found. Routine laboratory results that may be associated with pulmonary mycosis are an increase in the number of eosinophil cells.
In this patients found several suitable criteria for the diagnosis of pulmonary the lung with fever that does not improve after administration of adequate antibiotics, an increase in the number of eosinophils. disease in general, there are no pathognomonic.

mycosis, namely the long-term use of invasive medical devices, the long-term use of broad-spectrum antibiotics and corticosteroids, infiltrates in the lungs with fever that does not improve after administration of adequate antibiotics, an increase in the number of eosinophils. Some of the criteria should be taken into consideration while patients is hospitalized, so from the start of antifungal administration, fluconazole can be performed. Fluconazole is recommended for candida infections by the Food and Drug Administration (FDA) because it is safe, has fewer side effects and better tolerated than other antifungal classes. Administration of fluconazole during hospitalization 2 x 400 mg IV is not in accordance with the recommendations that should be 400-600 mg IV / 24 hours. Patients go home after 18 days of hospitalization, the medication for out patient treatment is fluconazole capsule 1 x 150 mg for 3 days and must be controlled 1x / week.

Conclusion

Mr. G, 61 years old, with diagnosis of type II respiratory failure with a history of decreased consciousness, HAP and former TB dd / TB recurrence. Patients had a history of being treated at the ICU in the past month for 12 days each. Empiric antibiotic initial therapy, levofloxacin combined with meropenem, is as recommended. After examination of culture and sensitivity test the antibiotic combination is changed to piperacillin tazobactam and levofloxacin, whereas levoflxacin is resistant to the pathogenic bacteria, it should be replaced with other fluoroquinolone groups such as moxifloxacin. During hospitalization patients is given corticosteroids.

Results of parasitological examination found candida albicans in countless amounts and diagnosed pulmonary mycosis. In addition to the results of the parasitological examination, several suitable criteria were found in patients thus diagnosed lung mycosis, namely long-term use of invasive health equipment, long-term use of broad-spectrum antibiotics and corticosteroids, infiltrates in Some of the criteria should be taken into consideration while patients is hospitalized, so from the start of antifungal

administration, fluconazole can be performed and patients general state can be improved.

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