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FACTORS OF RISK AND CAUSAL AT THE CORONER HEART ATTACK IN EMERGENCY INSTALLATION OF IMMANUEL HOSPITAL BANDUNG

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ABSTRACT

Coroner Heart Disease (PJK) was disease at the coronaries artery where there was constriction or blockage at the coronaries artery that often because the process of atherosclerosis. Based on the research of Basic health in 2007, it was estimated that the death caused by heart and blood vessel diseases in the world became 20 million in 2015. Risk factor of someone with PJK was determined by two or more risk factors. Factor that could be and couldn't be controlled such as follower diseases. The causal factors such as physical work, stress, emotional, and medical disease could be identified.

The aim of this research was to identify the risk and causal factors at the PJL attack in Emergency Installation of Immanuel Hospital Bandung. This research used quantitative method with research design of *analitic-corelational*. Number of sample were 90 respondents, by using the data collection technique of *consecutive sampling*. Instrument used was GPAQ (Global Physical Activity Quetionnaairre) and DASS 21 (Depression Anxiety Stress Scale). The data analyzed by using multivariate analysis with logistic regression.

The result showed that there was any relationship between the causal factor s of stress (p 0,020), *anxiety* (p 0,005) with the incidents of PJK attack. There was no significant relationship at the variable of risk factors: follower diseases of DM, hyper cholesterol, hyper triglyceride and hypertension. Multivariate test result showed that there was no relationship of initiate factors

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(p> 0,05), and at the risk factor: hyper cholesterol (p 0,010), hyper triglyceride (p 0,021).

Conclusion of this research showed that stress and anxiety factors, by bivariate test, had relationship with the incident of PJK attack. According to multivariate test, there was no initiate factor that was dominant toward the incident of PJK attack. The most dominant of risk factor was hyper cholesterolemia with p 0,010 and OR 6,569. It was concluded that people with hyper cholesterolemia had risk toward the PJK incident 6,569 times compared with people without hyper cholesterolemia.

INTRODUCTION

Heart was important organ in the body, the disturbance at the hearth could cause disturbance of all body system included blood vascularisation, disturbance of oxygen fulfillment, and disturbance of metabolism that fatally impacted if it wasn't overcame immediately. Coroner Heart Disease (PJK) was disease at the coronary artery where there was constriction or obstruction at the coronary artery that often caused by the atherosclerosis process.

This atherosclerosis process caused the progressive constriction at lumen of coronary artery, if the lumen went to constrict so the resistance at the blood flow was increasing and being danger for the myocardium blood flow (Price & Wilson, 2010).

Constriction disturbance of coronary artery caused the decreasing of blood and oxygen flow to the heart so that caused angina syndrome, infarct, myocardium, sudden heart attack that caused death (Black & Hawks, 2005). In 2005, at least 17,5 million or was equal with 30,0% of death in all the world caused by heart disease. According to world health organization, *World Health Organization* (WHO) 60 % of all death causes of heart disease was PJK (WHO, 2001).

Any of sudden deaths of heart disease caused by fatal ischemia, disritmia, and left ventricle dysfunction (Hudak & Gallo, 2010). Basic Patofisiology of death incidents was caused by unbalance between supplying and needs of myocardium oxygen.

Two or more of risk factors determined risk factor of a PJK sufferer. Someone with cardiovascular risk factor would have higher tendency to get coroner than they who didn't have risk factor. More risk factors owned, the risk to get PJK was also multiple (Yahya, 2010).

Although, roughly, at half of the cases, there was no precipitation or initiate factors appeared before the infract myocardium, the initiate factor such as physical work, emotional stress, and medical disease or surgical operation could be identified (Isselbacher et al., 2000). According to Rilantono et.al, 1996 the initiate factor that caused angina was physical activity, in rhythm with research result of Johan et al., 2000, the research in America which stated that high physical activity during some hours became trigger of infarct myocardium attack. The research in England that was related with infracts myocardium showed that the using of over energy during some hours before the attack became trigger of infarct myocardium. The characteristic of this activities were included raising, pushing, gardening, cutting the wood and jogging or rocket sport (Mittleman et al., 1993).

In order to reduce cardiovascular disease, the nurse must have inspecting skills, quick intervention, and repeated evaluation toward the result of intervention. The implementation of health education at the patients and family were done continually started since the reception of new patients included when did inspection of patients' health history.

Based on the introduction survey in the field that found through a practical reflection during the writer was in duty in Emergency Installation of Immanuel Hospital and during the residency activity at the Emergency Installation and intensive care in Hasan Sadikin Hospital Bandung, found 5 varied initiation phenomena of PJK attack. Two patients had initiation factor of physical activity of doing sport before the heart attack. One patient got heart attack when joining teacher certification program, one patient got heart attack after a while experienced with household problem. One patient got heart attack when reading the newspaper at leisure. The researcher was interested to know the factors that became the risk and initiation of PJK attacks. The general purpose of this research was to identified the risk and initiation factors at the PJK attack.

METHODS

This research was using quantitative method with research design of *analitic-corelational* that aimed to know the relationship of risk and initiation factors with the PJK attack. The approach of this research was using *crosectional study* by examining the risk factors (four follower diseases such as: DM, hiperkolesterolemia, hipertrigliserida, hipertensi) and initiation factors (stres, anxiety, depresi) with the PJK attack. Because this research contained of nine (variable and sub variable), so the number of sample at this

research was using minimum number of sample of 90 respondents.

The research was done in room of Emergency Installation in Immanuel Hospital Bandung. The instrument that was used to collect the data was standard physical activity questionnaire from WHO: *Global Physical Activity Questionnaire* (GPAQ), the data of emotional stress used *Depression Anxiety Stress Scale* (DASS) instrument and the follower disease used questioner related with patients condition based on the patients primary or secondary data, by using data of patients medical record.

RESULTS

The respondents' general characteristics were shown in table 4.1 – 4.3

(1) Respondents' characteristics based on PJK attacks

Table 1. Distribution of Respondents Based on PJK Attacks Frequency.

Variable	Number	Percentage (%)
Angina Pektoris (AP)	42	46,7 %
Acut Coronary Syndrome (ACS)	48	53,3%
Number	90	100%

Number of respondents in this research were 90, some of them (53,3%) or 48 persons got ACS incidents, and 42 sufferers got AP incidents.

(2) Respondents' Characteristic based on age

Table 2. Distribution of Respondents Frequency based on Age

Age Variable	Number	Percentage (%)
< 45	19	21,1
45-59	28	31,1
60-70	35	38,8
71-90	8	9,0
Number	90	100

According to table 2., respondents' age which got PJK attack, mostly (38,8%) at the age of 60-70 tahun. There was very few of th respondents (9,0%) got APK at the age of 71-90 years old.

(3) Respondents' characteristics based on gender, education, proffesion and PJK history in the family.

Table 3. Distribution of Respondents Frequency based on gender, education, proffesion and PJK history in the family.

Variable	Number	Percentage (%)
Gender		
Men	62	68,9
Women	28	31,1
Number	90	100
Education		
SD	22	24,4
SLTP	26	28,9
SLTA	28	31,1
PT	14	15,6
Number	90	100
Profession		
PNS	10	11,1
Private employee	13	14,4
Enterpreneur	15	16,7
Laborer	18	20
Farmer	5	5,6
Pensioner	12	13,3
Housewife	17	18,9
Number	90	100
PJK history in the family	51	56,7
Yes	39	43,3
No	90	100
Number		

Based on gender, record most of respondents (68,9%) or 62 persons were men and few of respondents (31,1%) or 28 persons were women. Frequency distribution of respondents' education level were mostly smooth for each level. The biggest percentage of respondents' education level were SLTA of 28 persons (31,1%), while the smallest percentage were College of 14 persons (15,6%).

The laborer profession had the biggest percentage of 20% and few of respondents (18,9%) were housewives. Partly of the respondents (56,7%) or 51 persons had PJK disease history in their family and other part didn't have PJK disease history in their family.

1) Factors that Initiated PJK

(1) Physical Activity

Table 4. Respondents' Frequency Distribution based on Physical Activity.

Variable of Physical Activity	Number	Percentage(%)
Low	39	43,3
Average	15	16,7
High	36	40
Total	90	100

Frequency distribution of respondents who had low activity level were 39 persons (43,3%), more than high activity of 36 persons (40%) and very few of the respondents (16,7%) were at the average activity.

(2) Stress level

Table 5. Respondents' frequency distribution based on stress level.

Variable of Stress Level	Number	Percentage (%)
Normal	31	34,4
Light	17	18,9
Average	14	15,6
Serious	13	14,4
Very Serious	15	16,7
Total	90	100

Based table 5., the biggest percentage at this stress level was normal level of 31 persons (34,4%) and the smallest percentage was stress with serious level of =13 persons (14,4%).

(3) *Anxiety* Level

Table 6. Respondents' frequency distribution based on anxiety level.

Variable of anxiety level	Number	Percentage (%)
Normal	28	31,1
Light	17	18,8
Average	15	16,7
Serious	15	16,7
Very serious	15	16,7
Total	90	100

Frequency distribution at this anxiety level had similar value at the average, serious, and very serious anxiety of 15 persons (16,7%) for each level. The biggest percentage was at normal level of 28 persons (31,1%), then the fewest were 17 persons (18,8 %) at light anxiety.

(4) Depression Level

Table 7. Frequency distribution based on depression level

Variable of depression level	Number	Percentage (%)
Normal	35	38,8
Light	15	16,7
Average	11	12,2
Serious	14	15,6
Very Serious	15	16,7
Total	90	100

Based on table 4.7 about frequency distribution at depression level showed that normal level had the biggest percentage of 35 persons (38,8%) and the fewest respondents were at the average level of 11 persons (12,2%).

2) Risk Factors of PJK

(1) Follower disease of DM

Table 8. Frequency distribution of follower disease DM.

Variable DM	Number	Percentage (%)
No	62	68.9
Yes	28	31.1
Total	90	100

Based on table 8, it showed that most of respondents (68,9%) didn't get DM, and few of respondents 31,1% or 28 persons got DM.

(2) Follower disease of hypercholesterolemia

Table 9. Frequency distribution of follower disease of hypercholesterolemia.

Variable of Hiperkolesterolemia	Number	Percentage (%)
No	42	46.7
Yes	48	53.3
Total	90	100

Frequency distribution of follower disease of hypercholesterolemia showed that partly of the respondents of 48 persons (53,3%) experienced with hypercholesterolemia and 42 persons didn't experience with hypercholesterolemia.

(3) Follower disease of hypertrigliserida

Table 10. Frequency distribution of follower disease of hypertrigliserida.

Variable of Hipertrigliserida	Number	Percentage (%)
No	57	63.3
Yes	33	36.7
Total	90	100

Based on table 10, it showed that mostly of the respondents 63,3% didn't ecperience with hypertrigliserida, and 33 persons (36,7%) experienced with hypertrigliserida.

(4) Follower disease of hypertension

Showed the frequency distribution of follower disease of hypertension with it's level

Table 11. Frequency distribution of follower disease of hypertension and it's level.

Variable of Hypertension	Number	Percentage (%)
No	34	37.8
Yes	56	62.2
Number	90	100
Hypertension Level		
Light	32	57,1
Average	15	26,8
Serious	7	12,5
Very serious	2	3,6
Number	56	100

Frequency distribution of follower disease of hypertension showed that mostly of respondents 56 persons (62,2%) got hypertension and few of them 34 persons (37,8%) didn't get hypertension. At the hypertension level, it showed that 32 persons (57,1%) from 56 all of the hypertension sufferers were at the light level.

Bivariate analysis of initiation factors with PJK attack.

(1) The relationship between physical activity with PJK attack

Table 12. Relationship between physical activity with PJK attack in IGD of . Immanuel Hospital Bandung

Physical Activity	PJK Attack				Total		OR (95 % CI)	p *value*
	AP		ACS					
	N	%	n	%	N	%		
Low	18	46	21	54	39	100		
Average	5	33	10	67	15	100	0,879	0,578
High	19	53	17	47	36	100	0,558-1,385	
Number	42	46,7	48	53,3	90	100		

Based on table 12., the relationship between physical activity with PJK incidents, it was found that from 39 respondents with PJK with low activity were (54 %) or 21 persons experienced with ACS and the other respondents (46 %) or 18 persons experienced with AP.

At the PJK sufferers, there were 36 respondents with high activity level, at 19 respondents (53%), the AP were higher than ACS of 47% or 17 persons. From the statistic test result, it was found that p= 0,578 (p>0,05) so it could be concluded that at alpha 5% there was no meaningful relationship between physical activity with PJK attack.

(2) Relationship between stress and PJK attack

Table 13. Relationship between stress with PJK attack in IGD of Immanuel Hospital Bandung

strest Variable Stress	PJK Attack				Total		OR (95 % CI)	p *value*
	AP		ACS					
	N	%	N	%	n	%		
Normal	11	14	20	86	31	100	1.787(0.468-6.831) 0.413(0.114-1.493)	
Light	4	23	13	77	17	100	0.344(0.090-1.31) 0.2(0.051-0.780)	0,020
Average	8	57	6	43	14	100		
Serious	8	62	5	38	13	100		
Very Serious	11	73	4	27	15	100	1,00	
Number	42	47	48	53	90	100		

Based on the analysis of relationship between stress and PJK attack, showed that: respondents with PJK attack who were at light stress were 17 persons. Most of the respondents (77%) or 13 persons were at ACS incident and few of them were at AP of 4 persons (23%). Respondents with normal stress, they were 11 persons got AP and 20 persons got ACS.

Respondents with PJK who got serious stress were 15 persons, mostly (73%) or 11 persons got AP incidents and 4 persons (27%) got ACS. From the result of statistic test, it was found that p= 0,020 (p<0,05), so it could be concluded that there was significant relationship between stress with PJK attack.

(3) Relationship between anxiety with PJK incident

Table 14. Relationship between anxiety with PJK incident in IGD of Immanuel Hospital Bandung

Anxiety	PJK Incident				Total		OR (95 % CI)	p *value*
	AP		ACS					
	n	%	n	%	n	%		
Normal	10	36	18	64	28	100	2.593(0.598-11.4) 0.278(0.074-1.04)	
Light	3	18	14	82	17	100	0.20.(0.051-0.84) 0.486(0.136-1.74)	0,005
Average	10	67	5	33	15	100		
Serious	11	73	4	27	15	100		
Very Serious	8	53	7	47	15	100	1,00	
Normal	42	47	48	53	90	100		

Relationship between anxiety with PJK attack showed that from 28 PJK persons who were in the normal anxiety, 10 persons (36%) got AP and 18 persons (64%) got ACS. At the average, serious and very serious

anxiety, there were 15 respondents of each level, got PJK with the highest percentage was AP than ACS.

From the result of statistic test, it was found that p= 0,005 (p<0,05), so it could be concluded that there was significant relationship between anxiety and PJK incident. Based on analysis result of OR, it could be analyzed that respondent with very serious anxiety had chance to get Angina Pectoris heart attack of 2.593 times than respondents with normal anxiety.

(4) Relationship between depression with PJK attack

Table 15. Relationship between depression with OJK attack in IGD of IGD of Immanuel Hospital Bandung

Depression	PJK Attack				Total		OR (95 % CI)	p *value*
	AP		ACS					
	N	%	n	%	n	%		
Normal	16	46	19	54	35	100	2.316(0.616-8.750)	
Light	4	27	11	73	15	100	1.011(0.259-3.9) 0.632(0.181-3.205)	0,375
Average	5	45	6	55	11	100	0.561(0.164-1.418)	
Serious	8	57	6	43	14	100		
Very serious	9	60	6	40	15	100	1,00	
Number	42	47	48	53	90	100		

Based on analysis of table 4.7., it showed that p value 0,375 (>0,05) could be concluded that there was no significant relationship between depression with PJK attack either AP of ACS.

2) Bivariate analysis of risk factors with PJK attack

(1) Relationship between follower disease: Dm with PJK attack.

Table 16. Realtionship between follower disease: DM with PJK attack in IGD of Immanuel Hospital Bandung

DM	PJK Attack				Total		OR (95 % CI)	p *value*
	AP		ACS					
	n	%	n	%	n	%		
Yes	11	39	17	61	28	100	1,545	
No	31	50	31	50	62	100	0,624-3,829	0,475
Number	42	47	48	53	90	100		

From 28 PJK sufferers who got DM, partly of the respondents of 17 persons (61%) got ACS, few of them (39%) or 11 persons got AP. From the result of statistic test, it was found that p value 0,475 (> 0,05) meant that there was no relationship between follower disease Dm with PJK attack.

(3)

(2) Relationship between follower disease: Hypercholesterol with PJK attack showed at table 17 as follow:

Table 17. Relationship between follower disease: Hypercholesterolemia with PJK attack in IGD of Immanuel Hospital Bandung

Hypercholesterolemia	PJK attack				Total		OR (95 % CI)	p *value*
	AP		ACS					
	n	%	n	%	n	%		
Yes	18	37	30	63	48	100	2,222	
No	24	57	18	43	42	100	0,954-5,176	0,099
Number	42	47	48	53	90	100		

Based on table 17, the relationship between follower disease: hypercholesterolemia with PJK attack, found the result that there were 48 persons got PJK attack in the hypercholesterolemia condition. This number was higher than PJK respondents who didn't get hypercholesterolemia of 42 persons. At the sufferers with hypercholesterolemia, most of them (63%) or 30 persons got ACS and few of them (37%) or 18 persons got AP. Through the statistic test result, it was found that p value 0,099 (> 0,05), could be concluded that at alpha 5% there was no relationship between hypercholesterolemia with PJK incidents.

(4) Relationship between hypertrigliserida with PJK attack clearly would be showed at Table 18. as follow:

Table 18. Relationship between follower disease: Hypertrigliserida with PJK attack in IGD of Immanuel Hospital Bandung

Hypertrigliserida	PJK Attack				Total		OR (95 % CI)	p *value*
	AP		ACS					
	n	%	n	%	n	%		
Yes	17	52	16	48	33	100	0,735	0,630
No	25	44	32	56	57	100	0,311-1,738	
Number	42	47	48	53	90	100		

Based on table 18, showed that from 33 respondents of PJK who got hypertrigliserida, there were AP incidents of 17 persons (52%), higher than they who got ACS of 16 persons (48%). After being statistic test, it was found the result of p value 0,630 (> 0,05) so it could be concluded that at alpha 5%, there was no meaningful relationship between hypertrigliserida with PJK attack.

(5) Realtionship between hypertension with PJK attack

Table 19. Relationship between follower disease: Hyprtension with PJK attack in IGD of Immanuel Hospital Bandung

Hypertension	PJK Attack	Total	OR (95 % CI)	p *value*

	AP		ACS					
	n	%	n	%	n	%		
Yes	26	46	30	54	56	100	1,026	
No	16	47	18	53	34	100	0,437-2,409	1
Number	42	47	48	53	90	100		

Based on the analysis result at table 4.19, it was found that from 56 respondents of PJK with hypertension there were many of them got ACS of 30 persons (54%) than AP of 26 persons (46%). At this PJK attack, there were 34 respondents didn't got hypertension.

The result of statistic test showed that p value, at the relationship between follower disease of hypertension with this PJK attact p=1, meant that there was no significant relationship.

Based on the factor od physical activity, there were two data that 36 persons (40%) of respondents had high activity. And some of respondents 39 persons (43%) had low activity. Johan et al., 2000, a research in America stated that high physical activity during some hours became trigger of infract myocardium attack. Regular aerobic activity decreased the PJK risk (Gray et al, 2005). Thereby, it could be concluded that inactivity condition could be risk of heart disease, average and high physical activities could influence the heart attack.

At this research, emotional stress consisted of stress, anxiety, and depression. There were 34,4% respondents were in normal stress, and some 65,5% were got light stress – very serious stress. There were 31,1% in normal anxiety and 68,8% were at light-very serious anxiety. The depression condition of 38,85 respondents were at normal depression and got PJK attack. The research that was conducted in London by Mark Hamer, 2008, proved that there was directly relationship of emotion and stability of heart rhythm which was potential to emerge danger heart rhythm (Yahya, 2010).

At the implementation of nursing education for patients with PJK, the nursing investigation was important part in maintaining the diagnose and making a plan. The investigation of patients' emotion could be well known both verbally or non-verbally. The nurses played role in reducing factors that increased patients' stress condition. Nurses could identify patients' perception about their health status, suggest the patients to share their feeling, facilitate the patients to communicate with family or closest people.

Based on the research result of Supriono (2008), Nababan (2008), stated that between the follower disease of DM, hypercholesterol, hypertrigliserida and hypertension, it was convinced became the risk of PJK. At this research, it was found the data that from 90 respondents, 28 persons (31,1%) got DM, 48 persons (53,3%) got hypercholesterolemia, 33 persons (36,7%) got hypertrigliserida, and 56 persons (62,2%) got hypertension. At hypertension level, it showed that 32 persons (57,1%) from 56 all hypertension sufferers were at light hypertension level. At this condition, a patient could get only one risk factor, or more than one risk factors.

Based on the risk factor, at this research, there was data that 15 persons (16,7%) were in normal condition, didn't have risk factor of DM, hypercholesterolemia, hypertrigliserida and hypertension. There were 30 respondents (33,3%) had only one risk factor, the average and 45 other respondents (50%) had more than one risk factors. More and more of someone's risk factors, so more and more risk of getting PJK (Yahya, 2010). Observing the research data, it was found the PJK attack that didn't have the four risk factors above, it might be influenced by other factor such as: obesity, smoking habit, and alcohol abuse. This research showed that half of respondents (50%) had more than one risk factors.

The data distribution based on initiation factor showed that there were only 6 respondents, based on the initiation factor, had low condition (physical activity) and normal condition (stress, *anxiety,* depression). In this research, there wasn't found the four initiation factors (at high activity) and very serious (stress, anxiety, depression) occurred all at once. From the research data could be concluded that PJK attack could be initiated by one or more initiation factors. The distribution of initiation factor at activity (high) and emotion stress (very serious) were at 33 respondents.

1) Relationship between physical activity with PJK attack

The description of physical activity distribution at PJK incident was that low activity had the highest number of 39 persons (43,3%) of all respondents, with the highest incidents at ACS.

This research data showed that from 90 respondents, there were 36 persons were at the level of high activity. It could be concluded that 40% respondents had high physical activity. From 36 persons with high activity, the most cases were 19 persons (52,8%) got AP cases and 17 persons (47,2%) got ACS cases. It was appropriate with the theory which stated that AP incident often happened after the increasing of physical activity (Udjianti, 2010) and research result in America which stated that 6,4% patients were in the condition after doing high activity before the infract miocardium attack (Johan et al, 2000).

At this research, there was 40% respondents had high physical activity, after being done the test of two variables relationship (bivariate), in fact there was no significant relationship. However, this condition must be cared because all activities that caused the increasing of pulse beat, systemic blood pressure became the initiation of angina incident (Rilantono dkk, 1996).

roThe GPAQ instrument had three parts of question: the first was related with physical activity in work, second was related with physical activity out of work (sport, recreation), and third was related with a journey from one to other places.

The development of information technology and transportation were impacted toward someone life style. People were rarely on foot to go to certain place, all society levels had the transportation tool of motorcycle. From the three parts questions of this research instrument, mostly Bandung society as the respondents in this research, did physical activity that related with work and the other part didn't do on foot activity to go to certain place.

At the end of categorization, MET of physical activity total/week ≥ 1500, and the using of day for the activity and high intensity sport ≥ 3 days only occured at 36 respondents.

2) Relationship between stress and PJK attack

At this 90 respondents, there were 31 persons were in the level condition of normal stress, and the most were at light stress of 17 persons. This research showed that there was relstionship between stress and PJK attack. It was appropriate with an opinion that stress was the initiation of heart attack (Asadi, 2009). Stress was a pressing or fearing power that caused stress inside someone's.

Clients' psychological history that related to their disease condition and it's impacts toward clients' social life became important because for many people, heart was symbol of life (Udjianti, 2010). Emotion condition, presses, or the existence of disease, often were not regarded as serious problem for the patients. Stress symptoms at someone's self often was not awarded because the stress stages happened slowly. When someone got *nervous break down* or heart attack, ere investigated to the past time in order to know the problem clearly (Patel, 1998).

Research in London by Mark Hamer, 2008 proved that directly there was relationship between emotion with stability of heart rhythm which was potential to cause dangerous heart rhythm (Yahya, 2010). RfjPhysical stress was predictor of PJK, the susceptible habit to this PJK such as: aggressive, competitive, desire to be placed, desire to achieve something, insomnia, hunger in the street (Gray et al, 2005).

roStress condition, emotion explosion made plaque at the wall of blood vessel so that became breakable. If this plaque was broken, so the blood wadding would be easily formed so that the coroner vessel would be hampered. This coroner hampered could cause heart attack because the oxygen and nutrient supply for heart cells was also stopped (Yahya, 2010).

rooThe questions in instrument DASS 21 that related with stress, some of them asked the feeling of difficulties in getting rest, over reaction in facing situation, using of over energy to be anxious, condition to be nervous, difficulties in getting relax, condition related with the finishing of certain activity and bad tempered. Those things were appropriate with the stress theory according to Hawari. The result of this research had similarities with many references and other researches.

Nurse as profession that always be with the patients had higher opportunities to do nursing education caused by stress owned by the patients. The review of data, investigation process referred the nurse to group the data that showed potential or actual stressor and patients' response. The technique of stress managing was designed to fulfill the patients' potential and actual stressor, some of them by: reducing the frequency of situation that caused stress, decreasing Perawat sebagai profesi yang senantiasa bersama-sama dengan pasien memiliki kesempatan yang lebih tinggi untuk melakukan asuhan keperawatan akibat stres physiological response toward stress, and increasing behaviour and emotional response toward stress (Smeltzer & Bare, 2002).

Nurse had main role at stress condition experience by patients of heart attack, PJK. Stress stimulated the release of *catecholamine* that would increase the speed of heart beat dan caused vasoconstriction. In the condition of heart with infract, narrowed, hampered, and needed much oxygen, so stress

condition would be dangerous when heart attack occurs. Nurse could do observation at each progress of patients' condition by paying attention to the verbal or non verbal response that connected with patients' hemodynamic. Through early introduction, the observation of general condition of physical and psychological would be enable the faster, more exact caring, so that could increase the quality of nursing education.

3) Relationship between anxiety and PJK attack

Based on distribution of anxiety level, there were 28 persons at normal anxiety, 17 persons got light anxiety and average anxiety, for serious and very serious anxiety were each 15 persons. This research showed that there was relationship between anxiety with PJK incident. According to research by Berger, 2005 in America, stated that general anxiety could predict the increasing of heart disease.

According to Stuart dan Sundeen (1995) stated that men had higher anxiety than women. As the paterfamilias, men acted as the families' backbone who had responsible to earn the life for earning daily needs in their families. Appropriate with this statement, respondents distribution based on age showed that more than half respondents (68,9%) were men.

Anxiety was natural disturbance that signed with fair, depth and continued afraid, didn't get problem in assessing reality, the attitude was disturbed but in the normal limits (Hawari, 2006). Someone would get anxiety when he was not able to manage psychosocial stressor faced. However, at certain person, although there was no psychosocial stressor, he also showed anxiety.

Patients with PJK in the anxious condition would have observed attitude, and this was part of nursing investigation. The grievances of people with anxious such as: anxiety, worried, unsteady, nervous, afraid to be alone or afraid of crowded, problem of sleep, problem of concentration and remembering, an somatic grievances.

Nurses played role in giving nursing education toward the anxiety problem, mainly when the patients were hospitalized in the hospital and giving health education toward the things that needed to be done after going home as part of nurses' *discharge planning*.

Tthe available nursing diagnose was related with anxiety condition at the PJK patients, some of them were: 1) anxiety or worried related with unpredictable physical condition, unfamiliar environment, and death threat caused by disease process, 2) the change of sleep pattern that related with chest painful, asphyxia, and hospitalization impact, 3) anxiety that related with the threat of biological integrity which felt secondary toward heart attack (Udjianti, 2010).

4) Relationship between depression and PJK attack

didn'At this research, it was found the data that percentage of people with normal depression condition were 35 persons (38,8%), higher than other depression level of light, average, serious or more serious level. Based on the analysis of relationship between depression and PJK attack, there was no significant relationship between them

Patients with depression were signed by: melancholy, sad, zest of life was decreasing, searching of heart, felt guilty, apologetic, and decreasing of memory and concentration (Hawari, 2006). Depression symptoms that shared by the patients were psychological and somatic (physical) problems. Depression symptoms could be suffered by people with psychosocial stressor that related with the lost of job class, position, or post serious ill. Follower diseases at this research consisted of DM, hypercholesterolemia, hypertrigliseride and hypertension, could influence the patients' depression condition.

didn'Stress, worried, and depression could stimulate the central nerve structure, through limbic system it continued to autonomy nerve then continued to hormonal glands that were body immunity system. Those stimulants could increase productivity of adrenalin hormone, influence heart function (go pitapat). Commonly, someone experienced with depression condition at longer term. The influence process toward the increasing of adrenalin might be nor worked suddenly so it could give the reason that depression was not related with PJK attack.

William Whang (2009), cardiology in *Columbia University Medical Centre* (CUMC) researched that serious depression at healthy women could stimulate heart attack, often with fatal ending. The relationship between depression symptom and heart incident at this research (CUMC) was not always clear, they were mixed with other risk factors such as high blood pressure, high cholesterol, and smoking.

There was very limited result found by the writer that related with depression as PJK initiation. Other research that was found through *prospective study* stated that depression was significant predictor toward death, heart disease, and aritmia for six months after infract myocardium attack (Hughes, 2000).

1. Relationship between follower diseases: DM with PJK attack

Research data showed that 90 respondents were PJK and few of them (28 persons) experienced with DM. This number was not represented the relationship between follower disease of DM with PJK attack. Criteria of DM, based on examining result of fasting blood sugar > 126 mg/dl without observing DM history at the respondents.

DM sufferers were tended to get atherosclerosis at early age and the disease occurred faster (Gray et al, 2005). This research result showed that age distribution at young respondents were fewer so it became one factor that there was no relationship between DM with PJK attack.

Coroner blood vessel was full of sugar, faster to be thick and hard. If this condition stood longer, the coroner vessel was narrowing and hampering. Heart would get unbalance needs of oxygen supply, and heart attack occurred.

Diabetes, although it was independent risk of PJK, also related with the existence of abnormality lipid, obesity, and increasing of trombogenesis (Gray et al, 2005). There were many other variables that influence the relationship of DM and PJK attack.

DM sufferers could have healthy heart if they were able to manage other risk factors, such as: DM sufferers who were able to press the blood pressure, DM sufferers who applied healthy life, stopped smoking habit, consumed food with fiber, and had sport activities at least 30 minutes everyday (Yahya, 2010).

2. Relationship between follower disease: hypercholesterolemia with PJK attack

Based on the frequency distribution of follower disease hypercholesterolemia showed that partly of the respondents 48 persons (53,3%) got hypercholesterolemia and 42 persons (46,7%) didn't get hypercholesterolemia. This condition hadn't represented the fulfill of meaningful relationship between hypercholesterolemia with PJK attack. Statistically, the result of p value 0,099 (> 0,005) at alpa 5%. According to epidemiology research, the relationship of cholesterol was often seen as positive independent predictor for coroner heart disease (Sugondo, 2001).

Kadar kolesterol yang tinggi dalam endapan darah menyebabkan endapan kolesterol pembuluh darah atau yang disebut plakkolesterol. Pengendapan ion kalsium pada plak ini menyebabkan plak yang biasanya lunak menjadi kaku dan tidak elastis. Endapan kolesterol yang retak memicu pembentukan gumpalan darah yang akhirnya menyumbat koroner (Yahya, 2010).

However, cholesterol could be controlled at the first stage of hypercholesterolemia therapy through diet program. The decrease of serum cholesterol degree could be achieved by reducing the consuming of saturated cholesterol. If therapy by using diet was not succed, or the increasing of lipid degree was poor so it was suggested to use hypolipemic medicine (Price & Wilson, 2010).

At the research of Framingham, men's cholesterol degree under 40 age was tied related with the PJK attack at the future, this relationship was not real at the older individual (Isselbacher, 2000). From this research, there were found 2 data that only 19 respondents (21,1%) at the age of < 45 years old. Most of the respondents 38,8% at the age of 60-70 years old so this research was not too real for the relationship between hypercholesterolemia with PJK attack.

3. Relationship between follower disease; hypertrigleseride with PJK attack

The research data of frequency distribution showed that most of respondents 57 persons (63,3%) didn't get hypertrigliseride, and 33 persons (36,7%) got hypertrigliseride. Based on that data, statistically showed that there was no relationship between hypertrigliseride with PJK attack.

However, base don the theory that trigliseride increasing (or VLDL) independently related with PJK premature (Isselbacher, 2000). The increasing of trigliseride still needed to be strengthen with other condition, such as pancreatitis (Isselbacher, 2000). High degree of trigliseride could initiate inflamed in pancreas (Yahya, 2010).

The increasing of trigliserie in plasma was much related with PJK but this was much influenced by food carbohydrate and fat condition (Almatsier, 2009). Other opinion stated that trigliseride was regarded as energy source for body (Yahya, 2010).

4. Relationship between follower disease: hypertension with PJK attack

Number of respondents who got hypertension were 56 persons (62,6%) from all 90 respondents. Based on the distributions, 54% got ACS and 46% got AP. At the bivariate test, hypertension was not proved had realtionship with PJK attack, This might be realted with respondents' hypertension level.

Some references referred that hypertension was important risk factor for atherosclerosis, mainly PJK and cerebrum vascular. The risk was increasing progressively by the increasing of blood pressure. At the opposite, the risk of atherosclerosis was seem reducing by giving anti hypertension medicine (Isselbacher, 2000).

At this research, the hypertension level showed that 32 persons (57,1%) of all hypertension sufferers at the light hypertension. It meant that systolic turn was 140-159 mmHg and diastolic was between 90-99 mmHg. This research result referred to the theory that hypertension with blood pressure above 160/90 mmHg could stimulate arteriosclerosis because this high pressure could be the pressure load at the artery wall (Rilantono dkk., 1996). More and more high of systolic and diastolic so more and more high the risk of stroke and congestive heart failed (Lawrence et all, 2002).

Hypertension at the respondents of this research was assessed with one time test/ *crosssectional* at patients with PJK, so there was possibility for average respondents to get treatment at the hypertension primary disease. Relationship between hypertension with PJK attck was also related with DM, hypoercholesterolemia, smoking habit, because all of them influenced the plaque forming at the coroner.

CONCLUSION

After being analyzed toward the risk and initiation factors of PJK attacks, through bivariate test, multivariate test, and logistic regression test, could be concluded that:

1. There was relationship between physical activity with PJK attack
2. There was relationship between stress with PJK incidents
3. There was relationship between anxiety with PJK attack
4. There was no relationship between depression with PJK incidents
5. There was no relationship between follower disease: DM with PJK incidents
6. There was no relationship between follower disease: hypercholesterolemia with PJK incidents
7. There was no relationship between follower disease: hypertrigliceride with PJK incidents
8. There was no relationship between follower disease: hypertension with PJK incidents
9. There was no dominant factor as the initiation of PJK attack
10. The most dominant factor at the PJK attack was hypercholesterolemia
11. Through bivariate test, it was found the relationship between initiation factor of anxiety with hypercholesterolemia.

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