

Research Article

THE EFFECT OF NURSING CARE APPROACH MODEL (NCAM= PAKAR) ON THE INCREASE OF CD4 CELL COUNT FOR PATIENT WITH HIV INFECTION

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ABSTRACT

The increase of the number of patient With HIV (PWH) Infection has become a great challenge to Indonesian nurses, confronting their values, practices and prejudices and many ethical dilemmas concerning autonomy, control and confidentiality. HIV diagnosis is perceived as a death sentence and the first reaction often include denial and shock. The purpose of the study was to examine NCAM, that focused on coping strategy and social support (nurse, family, and peer groups). This may result in positive cognitive response and to increase Biological responses. Psychoneuroimmunology paradigm was used in this study. Quasy-experimental pre-post test non randomized control group design was used in this study. Forty (40) PWH infections in Intermediate Department Care for Infection Disease (UPIPI) Dr. Soetomo hospital in Surabaya were selected and non-randomized assignment divided into 2 groups. Instruments, in vitro- test were used to measure biological response change: CD4 and IFN- γ and questionnaires, in depth interview and Focus Group Discussion were used to measure the cognitive responses; spiritual, social, and self-acceptance. A multivariate analysis was used to evaluate the data of biological response, while non-parametric test: Wilcoxon and Mann Whitney were used to measure cognitive response. The finding indicated that NCAM model is able to treat positive cognitive response that leads to induce immune response modulation that showed by the increase of CD4 cell count.

Keywords: Nursing Care Approach Model (PAKAR), cognitive adaptive responses, and Biological responses.

INTRODUCTION

There is a broad range of ethical and legal aspects in Indonesia that nurses should work with all patients, offering an equal standard of care regardless of factors such as age, religion, race, sexuality and so on. Nurses, therefore have no right to refuse to care to any patients including those with PWH infection. In practice, it is much more problematic and the issue of caring for PWH has thrown the ideal contrast into sharp focus (Nursalam, 2005).

People with HIV (PWH), regardless of how they were infected, all suffered from stigmatization and discrimination. They may bear an additional burden of secrecy (family, friends, colleagues) and unable to access the secondary gains of illness (Stewart, 1997). The social distress may exacerbate feelings of depression, damage self-esteem, spiritual distress with possible consequences for physical health that have been immune deficient. Psychological - social - spiritual stress through the HPA-Axis can cause the increase of cortisol in blood. This leads to the decline of immune response to function normally at the whole system of the body. The decline involves reduced function of local

effector cells, CD4 cell count. The CD4 cell count usually declines at a rate of 30-60cells/ μ L per year until it reaches a figure of around 350, when a much more rapid decline reaching 180 cells/ μ L (Stewart, 1997). In this situation, the role of nurse is very important to help patient in adaptive response.

Nurse needs to built up positive coping style of PWH with a positive identity around PWH and facilitate some communities of PWH in the ward/hospital to give social support to change cognitive positively. These groups often have a role model who are HIV positive - people who challenge the perception that HIV is a death sentence. However, there was no specific nursing care model carried by Indonesian nurse to provide coping strategy and social support on PWH infection.

The purpose of the study was to explain the effect of nursing care approach, called PAKAR model: Pendekatan Ausuhan Keperawatan PWH infection, on the adaptive response (cognitive and biological) for PWH infection.

METHODS

Quasy-experimental pre-post test non randomized control group design was used in this study. Forty (40) patient with HIV (PWH) infection (hospitalized and

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outpatient) Intermediate Care for Infectious Disease Unit (UPIPI) Dr. Soetomo hospital in Surabaya were selected and randomly assignment divided into 2 groups of 20 PWH. Group I (experiment group) and group II (control group). The PWH were 2 - 7 days diagnosed HIV infection. In vitro- test were used as an instrument to measure biological response change expressed in CD4 cell count. Psychological, social, and spiritual response were measured and observed by using questionnaires and in depth interview. A multivariate analysis was used to evaluate the data of immunity and non-parametric test: Wilcoxon and Mann Whitney were used to measure cognitive response (psychological response). The dependent variables on cognitive response include spirituality, social, and self-acceptance. The measurement was done on pre test and post test after 3 months. The pre-test measurement was done after patients have been diagnosed HIV positive within 2 to 7 days. The experiment groups received

PAKAR for 3 months (2 times per week). The intervention consisted of coping strategy and social support that involved family and PWH infection through in depth interview, learning, and peer group discussion (5 times). The topic consists of (1) treatment principle for PWH infection, (2) Rest and exercises (gymnastic special for HIV, (3) Nutrition (macro and mico nutrient), (4) Universal precautions, and (5) management of stress. The control group received one intervention every week when they visited the care unit (UPIPI). The post measurement was done after 3 months of the intervention.

RESULTS

The effect of PAKAR toward Biological (cortical, CD4, IFN- γ , Anti-HIV).

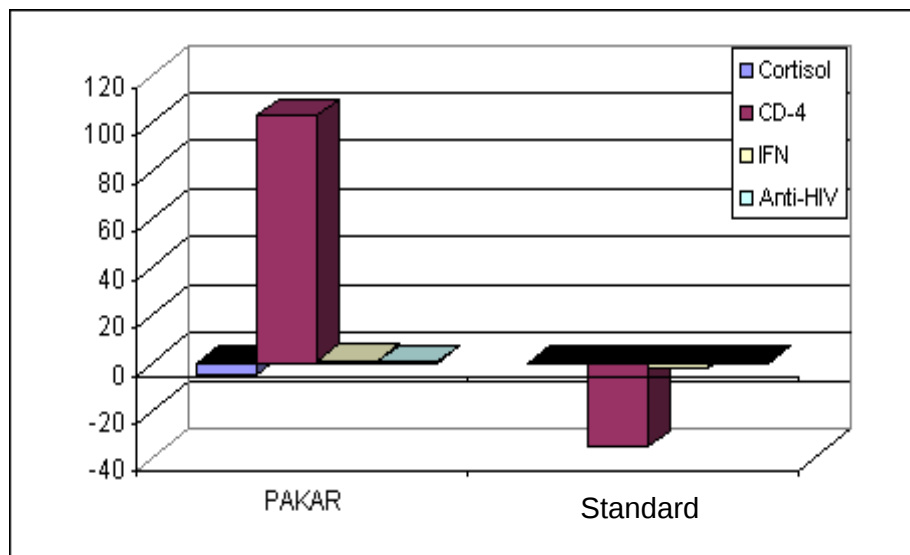


Figure 1. Biological responses after PAKAR

Biological response was found on the decrease of the cortisol on PAKAR group compared to standard one. Wilks Lambda test showed $F = 0.497$ and $p = 0.000$. The greatest variables that contributed to biological response

was CD4 cells count. The relationship between cognitive response caused by PAKAR on the increase of CD4 cell counts.

Table 1. The Biological change response after PAKAR.

	Cortisol		CD4		IFN- γ		Anti HIV	
	1	2	1	2	1	2	1	2
Mean	-4.117	-7.726	49.117	408	0.307	5.110	0.401	1.001
SD	5.295	4.560	59.692	192.45	2.059	1.727	0.406	0.306
ANOVA	p = 0.284		p = 0.000		p= 0.001		p = 0.027	
	MANOVA - Wilk's Lambda F = 0.263, p = 0.000							
Note	Cortical		IFN		CD4		Anti HIV	
	1 = -16.50 s/d -7.30		1 = 0.000		1 = -35 s/d 225		1 = 0.62 s/d 1.40	
	2 = -6.00 s/d 2.40		2 = 6.22		2 = 284 s/d 630		2 = -0.30 s/d 0.50	

The table shows that PAKAR model has an effect on the increase of CD4 cells count and followed by activity of IFN- γ , and Anti-HIV, while the cortisol variable has no effect caused by PAKAR model.

DISCUSSION

There were two kinds of nursing care strategy applied in PAKAR. First strategy was focused on built up coping strategy and the second one was social support. The purpose of the coping according to Pearlin and Schooler (1978) are as follows: (1) to eliminate the stressful situation so that it will not be a continuing problem (2) to control the meaning of the problems by cognitively neutralizing the situation to control stress created by the situation (e.g. through stress management techniques). The specific intervention in this study was three types of specific coping strategies: (1) psychological resources, (2) cognitive technique, and (3) behavioural technique. In addition, social support were focused on family and peer group support that includes (1) emotional support; (2) information support, and (3) facilities support.

Coping strategy and social support have an effect on learning process in Central Nervous System, such as astrocyte, microglia and neuron that it in turn leads to the decline of hormone secretions. Roy (1989) pointed out that the learning process is begun from; perception, learning, judgment, and emotion. The final of learning process is the change of positive coping style in order to prevent, avoid and control stress.

Applying PAKAR on nursing care for PWH caused biological exchange. The study found that PAKAR presents as a learning process that may result in positive cognitive response. PWH reduces their stress that is associated with declining in corticosteroids, catecholamine, and other hormones (Ader, 2001) that could increase the distribution of lymphocyte subsets such as CD4 cell counts in peripheral blood. This leads to immune response modulation, the increase CD4 cells count and IFN- γ . The increase of CD4 cells count will

increase avidity cells-relationship with MHC linked on the surface of cells target. The CD4 also have transduction signalling to manage T-cell activities through tyrosine kinase (p56lck) (Kresno, 2001). The signalling accepted from infection cell will induce lymphocyte to produce all kinds of lymphokine, especially IFN- γ . The increase IFN- γ activities will be able; (1) to block viral replication by stimulating cell to produce some enzymes to block RNA transcription; (2) to increase MHC I expression that is needed by CD8 to introduce viral antigen, (3) to stimulate Th-1 cell proliferation and cytotoxic cells activation, and (4) to block cells replications (Kresna, 2001).

PWH experiences biological as well as psychological stressor. The coping style used by the patient depended on education, experiences, characters, and moral/culture (Maramis, 2003). PWH that can cope well their stress, they will be able to be adaptive to the response quickly. This response will induce biological adaptive response, especially the increase of CD4 cells count that in turn can maintain immune cellular system in the body. Hence, based on Psychoneuroimmunology paradigm (Ader, 2001) stressful life experience has been shown to be associated with decrements in a number of immune functions including IFN- γ activity. For example, in the stressful events the production of cortisol, epinephrine, and norepinephrine has been shown to block capacity of IFN- γ . To activate murine macrophages to kill HSV-2 (Herpes Simplex viral) infected cells in vitro. Thus, stress-induce alterations in immune function may inhibit the ability of immune system to respond adequately to and contain HIV infection. As a result, the signs and symptoms of HIV wasting syndrome will be present such as; TB, fever, decline weight, and diarrhoea (Depkes, 2003).

Cognitive response caused by PAKAR has significantly correlated with the increase of biological change, especially the increase of CD4 cells count. Looking for silver lining on spiritual response has the greatest relationship with the increase of CD4 cells count. This means that PWH who are able to manage and control

the meaning of the problems by praying to their God, can increase CD4 cells count. In addition, Stewart (1997) pointed out that PWH with less stressful experience decline in steroids and catecholamine and other hormones that could alter distribution of lymphocyte, including CD4.

According to Roy (1989) social factors have become the major stressor factors in PWH. Discrimination, social stigmatisation may exacerbate feeling of depression and damage the self-esteem. In addition, lack of social support from family and workplace adds greatly to the stress of their HIV positive attitude. However, PWH with good social support will have a positive feeling, such as emotional stability, less anxiety, good relationship with others could induce CD4 cells counts and activity of IFN- γ . As patient state; "After being I hospitalised, I realised that there are still many people with severe condition. I don't have to be anxious with my diseases. The important thing is that I do my best (BD, male, 30).

Acceptance response, such as anger and bargaining has become the discriminant factors that were related with biological response. Ader (2001) explained that PWH with acceptance response; anger and bargaining could alter the increase of CD cells count. As nurse compare notes during group meetings it becomes evident that quality of care, depth knowledge, doctor patient rapport can all vary significantly. Sharing anger and frustration in the FGD help PWH to find themselves soon in acceptance. This helps PWH to be able to control their anger that it in turn could change the decline of cortisol and increase of CD4 cells count.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. PAKAR model has a function as learning process that is able to treat cognitive response by building positive coping style.
2. Positive coping style leads to induce immune response modulation that showed by the increase of the CD4 cells count.

Recommendations

1. PAKAR model should be applied in nursing care for PWH infection in all setting of health services in Indonesia.
2. The model can be applied to care patient with chronic diseases, such as cancer, diabetes mellitus, and hepatitis.

3. It is also recommended to conduct research on the effect of PAKAR on HSP 70 in order to protect apoptosis through cytokine mechanism.

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