



The effect of cork fish extracts (*channa striata*) on changes in immunoglobulin g levels in childbirth mother can't eats source of animal protein

(Study in Work Area UPT Wanareja I Health Center, Cilacap Regency)

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ABSTRACT

Background

Infection is still one of the causes of maternal death, the recovery process of the puerperium is related to the involution and healing process of the birth canal. Cork fish extract can be used as an alternative source of protein food for postpartum mothers who undergo abstinence from consuming animal protein sources. This study aims to determine the effect of cork fish extract (*chana striata*) on changes in immunoglobulin G levels in postpartum women who never eat animal protein sources.

Subjects and Methods

The research design is *quasy experiment* with the *pretest posttest one group design*. This research was conducted in the work area of the UPT of Wanareaja I Community Health Center, Cilacap Regency, from May to July 2018. The population of all postpartum mothers. Sampling technique with *purposive sampling*. The number of samples 30 was divided into 2 groups, 15 postpartum women as the control group who were only given Fe tablets and 15 postpartum mothers as the treatment group who received cork fish extract at a dose of 700mg / day 1x1 for 10 days. Independent variable influence of cork fish extract, dependent variable immunoglobulin level G. Instrument for immunoglobulin G examination using ELLISA method. Hypothesis testing using *independent t test*.

Results

There was a significant difference between the treatment group and the control group 2.44 ± 2.065 , 1.126 ± 1.445 *p value* 0.050

Conclusion

Giving capsules of cork fish extract dose 700 mg / day 1x1 for 10 days had an effect on immunoglobulin G of postpartum mothers.

Keywords: *Cork Fish Extract, Immunoglobulin G, Abstinence, Source of animal protein*

INTRODUCTION

In 2014 the Maternal Mortality Rate (MMR) in Central Java amounted to 126.55 per 100.000 live births, 57.93% of the most deaths occurred during post partum (2014 Central Java health profile) Infection during puerperium is still the main cause of maternal death. The incidence of postpartum infection in 2012 was 5.6%, experiencing an increase in 2013 which was as much as 7.3% (Kemenkes 2016) [1].

Anemia, *hygiene* poor, fatigue, troubled labor (prolonged labor / congestion), *chorioamnionitis*, traumatic labor, poor prevention of infection, and excessive manipulation are some of the factors that influence the occurrence of complications during puerperium (prawiroharjo 2008) [12].

Total mothers childbirth in Indonesia around 5.123.764, 4.206.437 or 80% have a habit of abstinence, in Central Java out of 21.403 postpartum women 81.5% abstain from eating (health profile in Central Java 2012) Postpartum mothers who abstain from protein sources means not consuming heme iron which has a *bioavailability* high. Iron in animal foods is higher in absorption of 20-30% (Saputri 2015).

Balanced nutritional intake for the recovery process of childbirth is very important, one of which is the production of ASI, (kulsum 2018) uterine involution including *ischemia*, *autolysis*, (hestianingrum 2015) and for healing in birth canal wounds as a prevention against infection (kulsum 2018). One of the most important nutrients in the process of healing perineum wounds is protein, because protein has a contribution in replacing damaged tissue and for new cell regeneration process. Protein is responsible as a substance for building blocks of muscle [3]. body tissue, but can not be stored by the body, so for the wound healing stage, protein intake is needed every day, (supiati 2015) other nutrients that act like iron (Fe) and zinc (Zn). The function of iron for oxygen delivery and collagen synthesis, zinc (Zn) plays a role in increasing cell proliferation, the epithelialization process and the strength of collagen (Winaktu 2011) [4].

One of the factors that affect immunoglobulins is nutrition, sex, medications, illness, age, physical activity and body temperature. Optimal immunity is needed for specific nutrients to recognize these foreign objects with or without damage to the tissue

itself so that when conditions decline, the body's defense is not susceptible to disease. (Djunaedi D 2013) [5].

Information from the midwife of the UPT Pusare Wanareja I some postpartum mothers who experience injury to the perineum or birth canal, but the healing of the perineal wounds does not go well, this is due to the habit of abstinence from eating animal protein sources carried out by postpartum mothers during the postpartum period [6].

Cork fish extract capsules have very good properties to improve and improve health because of the high content of *immunonutrients* such as protein albumin, complete essential amino acids and minerals Zn, and Fe. Cork fish extract serves to repair damaged body tissue cells, improve nutritional status and increase endurance, so that it can be used as an alternative food source of protein. The increase in the level of immunoglobulin G is a reflection of the body's defense system of postpartum mothers getting better [7].

SUBJECTS AND METHODS

Research design the

Type of research used was *quasy experiments* with *pretest posttest one group design*. The study was divided into 2 groups, namely the intervention and control groups. The study was conducted in the work area of UPT Wanareja I Health Center in Cilacap Regency in May - July 2018 [14].

Population and Sample

The population of this study were all postpartum mothers in the work area of UPT Wanareja I Community Health Center, Cilacap Regency in May-July 2018. The samples of all postpartum mothers were abstinence eat sources of animal protein that meet the inclusion and exclusion criteria totaling 30 respondents. 15 respondents for the intervention group and 15 control groups. The sampling technique used was *purposive sampling* [15].

Research

Variables Independent variables of cork fish extract capsules and dependent variable levels of immunoglobulin levels G.

Operational definition

Of cork fish extract is to provide cork fish extract Pujimin brand dose of 700 mg for 10 days. Immunoglobulin G is the main immunoglobulin in serum with mg / ml size [13].

Research Instrument. Research

Instrument for cork fish extract with observation sheet, while for measuring r levels of immunoglobulin G by ELLISA method [16].

Data Analysis Homogeneity

Test for variable confounding. Univariate analysis with mean, standard deviation. Bivariate analysis with *independent t test of*

Ethics Research

This research has obtained a letter of ethical feasibility from the Ethics Polytechnic Committee of the Ministry of Health of Semarang with the number: 406 / KEPK / Poltekkes-Smg / EC / 2018 [12].

RESEARCH RESULTS

Characteristics of Respondents

In this study consisted of 30 respondents, 15 intervention group and 15 control groups. The characteristics of this study are as follows:

Table 1 Frequency Distribution of Respondent Characteristics by Age, Education, Occupation, Blood Type, Parity, Malabsorpsi, Tea, Environmental and Genetic Habits in Intervention and Control

| Karakteristik Responden | Intervension Grup | | Control Grup | | *p |
|---------------------------------|-------------------|-------------|--------------|-------------|-------|
| | n | % | n | % | |
| Age (mean±SD) | 25.73±6.006 | 27.27±5.812 | 25.73±6.006 | 27.27±5.812 | 0.961 |
| Min-Max | 18-42 | 18-40 | 18-42 | 18-40 | |
| Malabsorption | | | | | |
| There is no interference | 15 | 100 | 15 | 10 | - |
| There is a disturbance | - | - | - | - | - |
| Tea drinking habits | | | | | |
| No | 11 | 73.3 | 11 | 73.3 | 1.000 |
| Yes | 4 | 26.7 | 4 | 26.7 | |
| Genetic | | | | | |
| There is | 2 | 13.3 | 3 | 20 | 0.345 |
| There is no | 13 | 87.7 | 12 | 80 | |
| Environment | | | | | |
| Good | 11 | 73.3 | 10 | | 0.448 |
| No Good | 4 | 26.7 | 5 | 66.7 | |
| Education | | | | | |
| Low education | 8 | 53.3 | 10 | 55.7 | 0118 |
| Middle education | 6 | 40 | 5 | 33.3 | |
| Higher education | 1 | 6.7 | - | - | |
| Work | | | | | |
| Work | - | - | 2 | 13.3 | 0.002 |
| Does not work | 15 | 100 | 13 | 87.7 | |
| Blood group | | | | | |
| Golda A | 1 | 6.7 | 7 | 46.7 | 0.533 |
| Golda B | 6 | 40 | 5 | 33.3 | |
| Golda AB | 1 | 6.7 | - | - | |
| Golda O | 7 | 46.7 | 3 | 20 | |
| Parity | | | | | |
| Primipara | 8 | 53.3 | 8 | 53.3 | 0.506 |
| Multipara | 5 | 33.3 | 6 | 40 | |
| Grandemultipara | 2 | 13.3 | 1 | 6.7 | |

*homogeneity: Levene test

Based on table 4.1 the distribution of characteristics of the respondents above from 30 respondents on average aged 25.73 in the control group and in the intervention group. The results of

homogeneity show that all characteristics of the respondent variables have the same data variant ($p > 0.05$), except work which is $p 0.002$.

Univariate Analysis

Table 2. Homogeneity Test for Immunoglobulin G Level in Control and Intervention Groups in the UPT Puskesmas work area Wanareja I

| Immunoglobulin G | Grup | | | | *P |
|-------------------|------------------|----------|-------------------|-----------|-------|
| | Intervention | | Control | | |
| | Mean \pm SD | Min-max | Mean \pm SD | Min-max | |
| <i>Pre test</i> | 2.46 \pm 1.713 | 0.10-5.6 | 3.23 \pm 0,969 | 1.7-6.0 | 0.031 |
| <i>Post test</i> | 4.90 \pm 1.302 | 2.5-7.5 | 4.36 \pm 1,212 | 2.2-5.9 | 0.734 |
| <i>Difference</i> | 2.44 \pm 2.065 | -1.6-5.9 | 1.126 \pm 1,445 | -3.0-2.44 | |

* homogeneity: *Levene Test*

Based on table 4.3 shows that the average immunoglobulin G pre intervention - average of 2.46 ± 1.713 and the control group the average - average 3.23 ± 0.969 . For immunoglobulin G measurements post-intervention averaged 4.90 ± 1.302 and the control group averaged 4.36 ± 1.212 . For the average immunoglobulin G the intervention

and control groups both experienced an increase. The intervention group experienced an increase of 2.44 ± 2.065 and the control group 1.126 ± 1.445 . The homogeneity test results showed data on immunoglobulin G levels before and after treatment had the same data variant ($p > 0.05$) [8-11].

Bivariate Analysis

Table 3 Bivariate Analysis of Immunoglobulin G Before and after capsules of Cork Fish Extract in Intervention and Control Groups in the work area of UPT Wanareja Health Center I

| Variabel | Mean \pm SD | | *P value |
|------------------------|------------------|-------------------|----------|
| | Intervention | Control | |
| Imunoglobulin G | | | |
| <i>Pre test</i> | 2.46 \pm 1.713 | 3.23 \pm 0.969 | 0.149 |
| <i>Post test</i> | 4.90 \pm 1.302 | 4.36 \pm 1.212 | 0.234 |
| **P value | 0.000 | 0.009 | |
| Difference | 2.44 \pm 2.065 | 1.126 \pm 1.445 | 0.050 |

** *Dependent t-test* * *Independent t-test*

Based on table 4.5 on the statistical test differences Immunoglobulin G intervention group was 2.44 ± 2.065 and control was 1.126 ± 1.444 with *p value* 0.050 so it could be concluded that there were significant differences in immunoglobulin G in postpartum mothers between the intervention and control groups ($5 0.05$)

DISCUSSION

Based on the results of statistical tests of differences in the intervention and control groups, it can be concluded that there is a significant difference between the intervention group and the control group *p value* 0.050, according to the theory that supports protein albumin found in cork fish is an alternative supplement that can improve nutritional status and immunity because contains

important compounds for the human body including high protein, albumin, fat, water and minerals. (Na. T 2013)

Zinc minerals in cork fish extract supplements that are known to affect immune function besides also beneficial in restoring immunity to organisms with by increasing the activity of enzymes catalase and the enzyme *superoxide dismutase* (SOD), (petalolo 2015) is a source of antioxidants animal that serves as a binder free radicals play a role in the cleaning process, plus albumin that is rich in antioxidants can increase endurance. (petalolo 2015)

Content essential fats are also found in cork fish which are important in the healing process of wounds because they cannot be synthesized in the body so they must be obtained from food or from supplements. The role of these essential fatty acids is to reduce inflammation, reduce the thickening of blood cells and play a role in preventing the proliferation of abnormal cells. (Purwaningsih 2016) Cork fish also has Cu minerals. Cu in cork fish 2.34 g. One of the functions of Cu is that it can form antibodies that can enhance one's immunity.

This study is in line with Eva Inayatul Faiza's research on the role of zinc and retinol on cellular activity of T and IgG lymphocytes in tuberculosis and non-tuberculosis children. There was a significant difference in Ig G levels between the

two groups where IgG levels in non TB groups were higher than TB patients (eva inayatul faiza)

Sorta Basar Research Ida Simanjutak et al. to determine the potential of *spirulina platensis* as immunostimulant and to determine the most potential fraction as anti-toxoplasma seen from immunoglobulin-G and immunoglobulin-M antibody responses measured using the ELISA method in mice that were given green blue algae methanol extract and infected with takizoit, can increase IgG and IgM as immunostimulators or as antitoxoplasm (follow-up 2011)

Research Rini Prastiwi immunomodulatory effect of black cumin seed extract with phagocytosis parameters of macrophages and increase in immunoglobulin G in mice with pe the comparison of the imboost control group found that black cumin seed extract with n-hexane solvent has the potential to improve the immune system of mice as evidenced by an increase in phagocytosis of macrophages and titers of immunoglobulin G. (prastiwi 2015)

Study of Nina Karina et al. Perineal wound healing in post partum mothers, it was found that the effect of cork fish extract on perineal wound healing inmothers *post partum* with a difference of 3.2 days. In the treatment group 7 days wound healing while in the control group 10 days (karina 2016)

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