

The Analysis of Food Consumption and Nutritional Status of Pregnant Women Towards Preeclampsia in Dr. M. Ashari Hospital Pemalang 2018

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Article Info

History of Article:
Accepted 28 March
2019
Approved 28 May
2019
Published 20 August
2019

Keywords:
consumption,
nutritional status,
Preeclampsia

Abstract

Preeclampsia is one of the causes of the high maternal mortality in Indonesia. More than 25% of maternal deaths in Indonesia are caused by preeclampsia. Preeclampsia can occur in women who lack and excess weight. One of Nutritional Diagnosis is refers to the measurement of nutritional status of food consumption. This study aimed to analyze the food consumption and nutritional status of pregnant mothers towards preeclampsia in Dr. M. Ashari Hospital Pemalang 2018. This study is a quantitative research. Design of analytic observational study with retrospective case control approach. Research conducted from May to July 2018. The population of the entire postpartum mothers who give birth at Dr. M. Ashari Hospital in 2017 and a sample number of 128 obtained by the formula Lameshow. The instrument used was a 24-hour recall diet survey by AKG and questionnaires. Data analysis using Chi Square test. The results showed significant relationship between food consumption and nutritional status on the incidence of preeclampsia in Hospital Dr. M. Ashari Pemalang. Nutritional status has a greater impact with OR 1.523 against preeclampsia compared with the consumption of food. Pregnant women are expected to regulate weight gain and the amount of food consumption during pregnancy to prevent preeclampsia.

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p-ISSN 2528-5998
e-ISSN 2540-7945

INTRODUCTION

Data from the World Health Organization (WHO) Maternal Mortality Rate (MMR) in the world in 2015 is 303,000 inhabitants with the majority of events in developing countries. Indonesia ranks fourth highest for MMR in the ASEAN region. Data Maternal Mortality Rate (MMR) Indonesia according to the Indonesian Demographic and Health Survey (IDHS) from 2012 to 2015 decreased from 359/100,000 live births to 305/100,000 live births. But this figure is still far from the 2015 MDGs targets that is 102 per 100,000 live births. Maternal mortality in Indonesia is still dominated by the three main causes of death are hemorrhage, pre-eclampsia, and infection. The proportions have changed, as bleeding and infection tended to decrease while increasing the proportion of preeclampsia.

Preeclampsia is a disease characterized by hypertension, proteinuria and edema that occurs during pregnancy or up to 48 hours postpartum. Generally occurs in the third trimester of pregnancy (Maryunani, 2012).

According to Saifuddin (2011) of pregnant women develop preeclampsia if having one predisposing factors such as obesity. Research result Dumais et al. (2016) suggest a link between obesity in pregnancy with preeclampsia as much as 66.7%. The same study conducted by Mbah et al. (2010) indicate that pregnant women with obesity have a risk three times more likely to develop preeclampsia compared with normal ones.

Weight gain in BMI (Body Mass Index) is the most common indicator to determine the nutritional status of mothers during pregnancy (Fikawati (2015) and the Institute of Medicine (IOM) (2009)). Nutritional status is divided into four namely underweight, normal, overweight, and obese (IOM, 2009).

The research result Andriani et al. (2016) about the relationship of Body Mass Index (BMI) and the incidence of preeclampsia showed a significant relationship between BMI with preeclampsia at Hospital Dr. M Djamil Padang. The average value of IMT in patients with preeclampsia are in the overweight category with a value of 24.15 kg/m², while in pregnant women

who do not pre-eclampsia, the average value of BMI is in the normal category, namely 22.3 kg/m².

In contrast to the results Durst et al. (2015) showed an increase in body weight of pregnant women are not associated with preeclampsia. Diagnosis of nutritional one of which refers to the measurement of nutritional status of food consumption (MoH RI and WHO, 2015). Research from (Agrawal, 2014) with a proper diet can reduce the risk of preeclampsia and eclampsia.

Data AKI Central Java province in 2015 that is 111/100,000 live births (619 cases). Pemalang Regency ranks second after Brebes as many as 22 cases of maternal death (Prov Central Java Health Office, 2016) with the highest causes of hypertension in pregnancy are a number of 10 people (Pemalang District Health Office, 2016). Based on the description above, the researchers are interested to analyze the food consumption and nutritional status of pregnant mothers against preeclampsia in Hospital Dr. M. Ashari Pemalang.

Research on food consumption and nutritional status of pregnant mothers against preeclampsia has not been done in Pemalang district which is a contributor to maternal mortality rate in Central Java. The purpose of this study to analyze the food consumption and nutritional status of pregnant women against the incidence of preeclampsia in Hospital Dr. M. Ashari Pemalang in 2018. It is expected to provide information regarding the importance of regulation of food consumption and nutritional status to prevent preeclampsia.

METHODS

This study is a quantitative research. Design of analytic observational study with case control approach retrospectively. Research conducted from May to July 2018. The population in this study were all postpartum mothers who give birth at Hospital Dr. M. Ashari Pemalang from January to December 2017 some 438 people and samples of 128 samples were obtained by the formula *Lameshow*, The instrument used was a 24-hour recall diet survey

by AKG drawn from primary data through interviews to determine food consumption questionnaire maternal and patient data taken from secondary data KIA books patient and medical records at the hospital. Then the data were analyzed using Chi Square test.

RESULTS AND DISCUSSION

Characteristics of Respondents

The results of the 128 respondents, mostly aged 21-35 years a number of 98 persons (76.6%) and the majority of respondents multigravida (pregnant ≥2), the number of 88 people (68.8%).

Concluded most have enough calories results (95-105%), the number of 75 people (58.6%) and the majority of pregnant women have a BMI of 25 to 29.9 overweight inpartu kg/m², namely the number of 67 people (52.3%).

Capital Food Consumption relationship with Genesis Preeclampsia

Table 1. Food Consumption relationship with Genesis Capital Preeclampsia in Hospital Dr. M. Ashari Pematang

| Calories Mother | The incidence of preeclampsia (PE) | | | | | | p-value | OR |
|-----------------|------------------------------------|-------------|-----------|-------------|------------|------------|---------|-------|
| | PE | | not PE | | Σ | | | |
| | f | % | f | % | f | % | | |
| Very low | 8 | 12.5 | 4 | 6.3 | 12 | 100 | 0,004 | 0.519 |
| Low | 4 | 6.3 | 12 | 18.8 | 16 | 100 | | |
| Enough | 33 | 51.6 | 42 | 65.6 | 75 | 100 | | |
| Very high | 19 | 29.7 | 6 | 9.4 | 25 | 100 | | |
| Total | 64 | 50.0 | 64 | 50.0 | 128 | 100 | | |

It is known that the respondents have a very high calorie food intake (106-115%) most likely to have preeclampsia, a number of 19 people (29.7%). While the respondents who have a very low calorie consumption (<85%), most experienced preeclampsia number 8 respondents (12.5%).

Chi Square test results obtained p-value of 0.004. Because p-value 0.004 < α (0.05) it can be concluded that there is a significant relationship between maternal calorie consumption on the incidence of preeclampsia in Hospital Dr. M. Ashari Pematang. Then, the results obtained for

the value Odds ratio OR = 0.519. It shows that mothers who consume high calorie 0.519 times greater risk of experiencing preeclampsia than women who consume enough calories.

Research from Taslim et al. (2016), which shows that there is a relationship between diet and the incidence of hypertension in pregnancy in Puskesmas Lamonji West Palu subdistrict (p-value 0.012). This is in line with research Chairiah (2012) in RSU Tanjung Pura found 53.3% of pregnant women with hypertension eat more eat, the carbohydrates are high enough such as fried foods, crackers, and chips that almost every day is consumed and also women who frequently ate meatballs, fried noodles at least 3 times a week while serving daily meals has also been increased.

No physical discomfort changes in pregnant women led to changes in diet and stress. Oxidative stress is an imbalance between free radicals and antioxidants consumed by pregnant mothers changes in placental trophoblast invasion triggered by the inadequate, are the cause of oxidative stress in the systemic circulation. This in turn will induce endothelial dysfunction and lead to the emergence of symptoms of preeclampsia (Zusterzaal (2000) in Arcana et al. (2009)).

Wulandari et al (2015) observed that there is a relationship between the consumption of food sources of antioxidants with preeclampsia. One antioxidant ingredients that are often consumed by pregnant women is honey. Research Yuniastuti et al. (2015) states that the content of antioxidants in honey longan role in increasing the body's antioxidant levels. In addition, antioxidants are often consumed by pregnant women that fish, sayuan, tubers, and fruits. According Setiyono et al. (2012) on food consumption can lower blood Hg levels that are toxic to the body. Research from Rahayu et al (2014) mentions that the habit of junk food can also cause preeclampsia.

Relationship of Nutritional Status with Genesis Preeclampsia

Table 2. Relationship of IMT with preeclampsia in hospitals Dr.M. Ashari Pematang.

| IMT (kg / m ²) | The incidence of preeclampsia (PE) | | | | | | p-value | OR |
|----------------------------|------------------------------------|------|--------|------|-------|-----|---------|-------|
| | PE | | not PE | | Total | | | |
| | f | % | f | % | f | % | | |
| Underweight | 8 | 12.5 | 4 | 6.3 | 12 | 100 | 0,000 | 1,523 |
| Normal | 5 | 7.8 | 11 | 17.2 | 16 | 100 | | |
| Overweight | 25 | 39.1 | 42 | 65.6 | 67 | 100 | | |
| Obese | 26 | 40.6 | 7 | 10.9 | 33 | 100 | | |
| Total | 64 | 50.0 | 64 | 50.0 | 128 | 100 | | |

It is known that the respondent postpartum preeclampsia in Hospital Dr. M. Ashari Pematang based BMI inpartu most have a BMI of obese (> 30 kg / m²) is the number of 26 people (40.6%) who experienced preeclampsia. While respondents were not post-partum preeclampsia in Hospital Dr. M. Ashari Pematang based BMI inpartu most have a BMI of overweight (25-29.9 kg/m²), some 42 people (65.6%).

Chi Square test results obtained p-value of 0.000. Because p-value 0.000 < α (0.05) it can be concluded that there is a significant relationship between BMI on the incidence of preeclampsia in Hospital Dr. M. Ashari Pematang. Then, the results obtained for the value Odds ratio OR=1.523. It showed that women who had a BMI of obese (>30 kg/m²) 1.5 times greater risk of experiencing preeclampsia compared with women who had a normal BMI.

This is in line with research Yuniarti (2018) which says that the weight gain is not controlled during pregnancy increase the level of fat in the body. The weight gain can risk, but not a risk factor. In contrast to research Khuzaiyah et al. (2016) concerning the characteristics of pregnant women with preeclampsia in Pekalongan which showed that the majority of respondents 46.8% of pregnant women with preeclampsia have a BMI enough.

Wafiyatunisa et al (2016) also mentions that the obesity associated with an increase Asymmetric dimethylarginine (ADMA) ADMA Increased which will cause disruption of the

formation of nitric oxide (NO) and increase NOS uncouple thus causing endothelial dysfunction, which would lead to preeclampsia. In theory it is mentioned that the average external diameter of the spiral arteries of the uterus in women with preeclampsia was 1.5 times smaller than the diameter of the same artery in pregnancy without complications. Failures in vascular remodeling process, together with the narrowing of blood vessels in obese women make adequate inhibition of the response to the needs of increased fetal blood supply that occurs during pregnancy. Increased blood supply to the heart that causes a vasoconstrictor, a vasodilator, the regulatory function of anticoagulants, antiplatelet, and fibrinolysis lead to the emergence of the idea that the release of factors from the placenta that was in response to ischemia causes endothelial dysfunction in the maternal circulation. Data from the research on the pathogenesis of endothelial dysfunction as early preeclampsia show that these possibilities as the cause of Preeclampsia (Cunningham, 2009).

CONCLUSION

There was a significant relationship between food consumption and nutritional status of pregnant mothers against preeclampsia in Hospital Dr. M. Ashari Pematang. Nutritional status has a more significant effect on the incidence of preeclampsia with OR=1.523 compared with the consumption of foods with OR=0.519.

REFERENCES

- Agrawal, S. 2014. "Frequency of Consumption of Specific Food Items and Symptoms of Preeclampsia and Eclampsia in Indian Women". *International Journal of Medicine and Public Health*, 4 (4), 350-353.
- Andriani, C., Lipoeto, N. I., & Utama, B. I. 2016. "Hubungan Indeks Massa Tubuh dengan Kejadian Preeclampsia di RSUD Dr. M. Djamil Padang". *Jurnal Kesehatan Andalas*, 5 (1), 173-178.
- Arcana, N., & Sugiritama, W. 2009. "Pengaruh Pemberian Minyak Buah Merah(Pandanus

- Conoideus Lam*) Terhadap Kadar Vitamin E Plasma Hewan Model Preeklampsia". *Medicina*, 40, 27-31.
- Chairiah. 2012. "Pengaruh Pola Makan dan Status Gizi Terhadap Kejadian Hipertensi pada Ibu Hamil di RSUD Tanjung Pura Kab Langkat" [Tesis]. Universitas Sumatera Utara: Medan.
- Cunningham F, G. 2009. *Obstetri Williams*. Jakarta: EGC
- Dinas Kesehatan Kabupaten Pematang. 2016. *Data Program Kesehatan Ibu dan Bayi*. Pematang: Bidang Kesehatan Keluarga
- Dinas Kesehatan Provinsi Jawa Tengah. 2016. *Buku Saku Kesehatan Triwulan 2 Tahun 2016*. Semarang: Dinkes Jateng.
- Dumais, C. E. G., Lengkong, R. A., & Mewengkang, M. E. 2016. "Hubungan Obesitas pada Kehamilan dengan Preeklampsia". *Jurnal e-Clinic (eCI)*, 4 (1).
- Durst, J.K. 2015. "Degree of obesity at delivery and risk of preeclampsia with severe features". *Presented in part at the 35th Annual Meeting of the Society of Maternal-Fetal Medicine in San Diego, California February 2-7, 2015.*,
- Fikawati, S., Syafiq, H., & Karima K. 2015. *Gizi Ibu dan Bayi Ed. 1*. Jakarta: Rajawali Pers
- Institute of Medicine. 2009. *Weight Gain During Pregnancy. Weight Gain and Nutrient Supplements*. Washington DC: National Academy Press
- Kemendes RI & WHO. 2015. *Buku Saku Asuhan Gizi di Puskesmas: Pedoman Pelayanan Gizi bagi Petugas Kesehatan*. Indonesia: Ministry of Health
- Kementerian Kesehatan RI. 2016. *Profil Kesehatan Indonesia Tahun 2015*. Jakarta: Kementerian Kesehatan RI
- Khuzaiyah, S., Anies., & Wahyuni, S. 2016. "Karakteristik Ibu Hamil Preeklampsia". *Jurnal Ilmiah Kesehatan (JIK)*, 9 (2), 1-5.
- Maryunani, A. 2012. *Asuhan Kegawat Daruratan dalam Kebidanan*. Jakarta: Trans Info Media.
- Mbah A., Kornosky J., Kristensen S., August E., Alio A, Marty P, dkk. 2010. "Super-obesity and risk for early and late pre-eclampsia". *BOJG*.
- Rahayu, L. D. P., & Suryandari, A, E. 2014. "Hubungan Kebiasaan Konsumsi Junk Food dengan Kejadian Preeklampsia pada Ibu Hamil di RSUD Prof. Dr. Margono Soekarjo". *Jurnal Inovasi Kebidanan*, 4 (8), 1-10.
- Saifuddin, A. B. 2011. *Buku Acuan Nasional Pelayanan Kesehatan Maternal dan Perinatal*. Jakarta: YBSP
- Setiyono, A., & Djaidah, A. 2012. "Konsumsi Ikan dan Hasil Pertanian Terhadap Kadar Hg Darah". *Jurnal Kesehatan Masyarakat*, 7 (2), 110-116.
- Taslim, dkk. 2016. "Hubungan Pola Makan dan Stres dengan Kejadian Hipertensi Grade 1 dan 2 Pada Ibu Hamil di Wilayah Kerja Puskesmas Kamonji Kecamatan Palu Barat". *E-Journal Keperawatan (ekp)* Vol. 4 (1), Feb 2016
- Wafiyatunisa, Z., & Rodiani. 2016. "Hubungan Obesitas dengan Terjadinya Preeklampsia". *Medical Journal of Lampung University*, 5 (5), 184-190.
- Wulandari, N., Astuti, D., & Sumarni. 2015. "Hubungan Konsumsi Makanan Sumber Antioksidan dan Konsumsi Makanan kaleng dengan Kejadian Preeklampsia di RSUD Dr. R. Goeteng Taroenadibrata Purbalingga Tahun 2015". *Bidan Prada: Jurnal Ilmiah Kebidanan*, 6 (2), 85-93.
- Yuniarti, F., Wijayati, W., & Ivantarina, D. 2018. "Analisis Perilaku Kesehatan dan Faktor Resiko Kejadian Preeklampsia pada Ibu Hamil di Poliklinik Obstetri Gynekologi RSUD Kabupaten Kediri". *Journal of Issues in Midwifery*, 1 (3), 1-17.
- Yuniastuti, A., Kamilatussainah., & Sasi, F. A. 2015. "Pengaruh Pemberian Madu Kelengkeng Terhadap Aktivitas Enzim *Superoxide Dismutase* dan *Katalase* pada Tikus yang Diinduksi Pb Asetat". [Prosiding]. Universitas Wahid Hasyim Semarang