Research Article

The Relationship between Capillary Blood Hematocrit Values and The Incidence of Anemia in Pregnant Women at the Community Health Center Sidodadi West Range

Elisa Silvia Aritonang¹*, Marti Silfia²

¹ Universitas Sari Mutiara Indonesia, Indonesia; email: elisasilviaaritonang@sari-mutiara.ac.id
² Universitas Sari Mutiara Indonesia, Indonesia; email: martisilfia26@gmail.com

*Author Correspondence: elisasilviaaritonang@sari-mutiara.ac.id

Abstract. This study aims to analyze hematocrit values using a micro method with capillary blood samples in pregnant women with anemia at the Sidodadi Kisaran Barat Community Health Center. This study is a descriptive study with a cross-sectional approach involving 15 pregnant women as respondents. Data collection was carried out through hematocrit laboratory examinations and data collection of respondent characteristics. The results showed that 60% of respondents had hematocrit levels below normal values, while 40% of respondents had hematocrit levels within normal limits. Low hematocrit levels in pregnant women are influenced by several factors, including age, education level, employment status, and level of knowledge about anemia during pregnancy. This condition has the potential to increase the risk of pregnancy complications if not optimally managed. Therefore, it is recommended that health workers continue to increase educational efforts regarding anemia prevention, the importance of regular pregnancy check-ups, and encourage pregnant women to maintain a balanced nutritional consumption pattern and adequate iron intake to support maternal and fetal health.

Keywords: Anemia; Capillary Blood; Hematocrit; Micro Method; Pregnant Women.

1. Introduction

Anemia is one of the problem health society that still often found in the mother pregnant in developing countries, including Indonesia. Conditions This marked with decline level hemoglobin and hematocrit in blood, which causes decrease capacity blood in transport oxygen to network body . According to World Health Organization (WHO, 2023), around 40% of mothers pregnant in the world experience anemia, and more of 50% of cases caused by deficiency substance iron. In Indonesia, the results Basic Health Research (Riskesdas, 2022) shows that prevalence anemia in mothers pregnant reached 48.9%, and some big occurs in the second and third trimester pregnancy.

During pregnancy, it occurs improvement need physiological to substance nutrition like substance iron and acid folat consequence increased blood plasma volume. Imbalance between needs and intake substance nutrition can cause decline level hematocrit and hemoglobin leading to anemia. Examination hematocrit become one of the important parameters in assess anemia status, because describe percentage of erythrocyte volume to total blood volume.

Examination method hematocrit in a way micro use blood capillary own superiority that is more fast, efficient, and only need small blood volume. This method is very suitable used in facilities service primary health such as health centers, especially For Mother frequent pregnancies undergo routine check-up.

Community Health Center Sidodadi West Range is one of the facility health services inspection pregnancy and detection anemia in mothers pregnant. Based on preliminary data 2020, still found Enough Lots Mother pregnant with level hematocrit below normal

values , which indicate existence anemia . Condition This can cause complications Serious like labor premature, low birth weight low birth weight (LBW), up to increasing risk death Mother.

Therefore that, research This done For know connection between mark hematocrit blood capillary with incident anemia in mothers pregnant at the Community Health Center Sidodadi West Range . Research results This expected can give description real regarding anemia status Mother pregnant in the area and become base for power health in effort prevention and treatment anemia in mothers pregnant in a way more effective.

2. Theoretical Study

Anemia in Pregnant Women

Anemia in mothers pregnant is condition when hemoglobin and hematocrit levels in blood be under normal values , namely hemoglobin <11 g/dL and hematocrit <33% (WHO, 2023) . This caused by an increase need substance iron during unplanned pregnancy balanced with intake adequate nutrition . As a result , the body No capable form cell blood red in optimal amount so that happen decline ability blood in transport oxygen. According to Ministry of Health of the Republic of Indonesia (2022), causes of anemia in pregnancy can differentiated become iron deficiency anemia iron , megaloblastic anemia consequence lack sour folate and vitamin B12, and hemolytic anemia . The impact of anemia on the mother pregnant can covering improvement risk labor premature , low birth weight low birth weight (LBW), as well as disturbance grow flower fetus (Fatonah , 2016).

Examination Hematocrit

Hematocrit is one of the important parameters in inspection hematology which describes cell volume percentage blood red to total blood volume . Normal hematocrit values for woman mature range between 36–46%, while in mothers pregnant tend more low consequence increased blood plasma volume (Gandasoebrata , 2013). Examination hematocrit can done with method macro and micro . Micro method more often used in facilities primary health because only need little blood volume and time brief examination . Procedure This use blood capillary taken from end finger , inserted to in tube capillaries , then centrifuged with a microhematocrit centrifuge for 5 minutes . The hematocrit value Then read using a hematocrit reader (Kiswari, 2014).

Relationship between Hematocrit Values with Anemia in Pregnancy

Hematocrit value own correlation close with hemoglobin levels and can used as indicator simple For evaluate degree of anemia. Decrease mark hematocrit show decline amount erythrocytes in circulation , which indicates the presence of anemia.

Research by Medica Arteriana (2024) shows that mark hematocrit in mothers third trimester of pregnancy tend decrease along increased blood plasma volume . Similar results were also found by BMC Public Health (2024), that prevalence of anemia increases in pregnancy with level hematocrit below normal limits . Therefore that , the examination hematocrit blood capillary can made into tool screening beginning in detecting anemia in mothers pregnant , especially in the area with limitations facility laboratory.

Factors Affecting Hematocrit Values

A number of factor can influence mark hematocrit in mothers pregnant, including age pregnancy, nutritional status, level education, work, and compliance taking substance tablets iron. Proverawati (2013) stated that Mother pregnant with compliance tall to consumption of Fe tablets has higher risk of anemia low compared to with mothers who do not consume it regularly. In addition, social status the economy also affects ability Mother in get intake food nutritious. Arisman (2010) added that hormonal factors during pregnancy cause greater increase in plasma volume fast compared to improvement amount erythrocytes, so that happen hemodilution physiological factors that contribute lower level hematocrit.

3. Research Methods

This study used a descriptive cross-sectional design. The study population was all pregnant women with anemia who underwent hematocrit testing at the Sidodadi Community Health Center in West Kisaran. A sample of 30 individuals was selected. purposively . Primary data was obtained from results inspection The hematocrit laboratory micromethod was used, while secondary data were obtained from medical records. Data

analysis was conducted descriptively and presented in the form of a frequency distribution table.

4. Results And Discussion

Characteristics Respondents

Study This done against 30 mothers pregnant woman who does inspection hematocrit at the Community Health Center Sidodadi West Range. Respondents consists of from various group age, level education, and employment status. Based on results data collection, some big respondents be in a group aged 20–35 years (80%), with level education secondary school (SMP-SMA) by 70%, and the majority No working (mother) House household) as much as 60%. Social factors demographics the potential affect health status, including level hematocrit, because related with knowledge and patterns consumption substance nutrition during pregnancy.

Hematocrit Value of Pregnant Women

Based on results inspection hematocrit use method micro from sample blood capillary, obtained distribution as following : 18 respondents (60%) have mark hematocrit below normal (<33%), categorized experiencing anemia. 12 respondents (40%) had mark hematocrit within normal limits (≥33%). The average hematocrit value in mothers pregnant anemia sufferers is 30.2%, while in mothers pregnant with normal level is 36.5%. This result show that part big Mother pregnant in the research area experiencing mild anemia until currently.

Relationship between Hematocrit Values with Anemia Incident

Analysis connection between mark hematocrit blood capillary with the incidence of anemia shows existence meaningful connection in a way descriptive. The more low mark hematocrit , increasing tall possibility Mother pregnant experiencing anemia. This is in line with theory Gandasoebrata (2013) and WHO (2023) which stated that hematocrit is an important parameter in determination of anemia status due to reflects the volume of erythrocytes to total blood. In addition to the factors physiological pregnancy, decrease level hematocrit can also caused by lack of intake substance iron, increased plasma volume, and existence infection chronic obstructive formation erythrocytes. Research results This support BMC Public Health (2024) findings that prevalence of anemia increases in mothers pregnant with level hematocrit low, especially in the second and third trimesters pregnancy.

Discussion

Research result This show that the incidence of anemia in mothers pregnant Still Enough high in the work area Community Health Center Sidodadi West Range. Conditions This possibility big related with factor knowledge, education , and compliance Mother pregnant in consuming Fe tablets. According to Proverawati (2013), compliance consumption of Fe tablets has influence significant to improvement hemoglobin and hematocrit levels. From the side inspection laboratory, method micro hematocrit proven effective For screening rapid anemia in mothers pregnant Because need little blood volume and provide accurate results. This is also supported by research by Medica Arteriana (2024) which shows suitability tall between results method micro and flow cytometry methods.

With Thus, the examination hematocrit blood capillary can made into tool detection early detection of anemia in facilities primary care. Research results This expected can become base for officer health in increase education nutrition and anemia prevention programs for mothers pregnant, especially in rural areas.

5. Conclusion

Based on results study against 30 respondents Mother pregnant at the Community Health Center Sidodadi West Range, obtained that 18 people (60%) experienced decline level hematocrit (<33%) and 12 people (40%) had level normal hematocrit (≥33%). This result show that part big Mother pregnant anemia sufferers have mark Low hematocrit. Factors that influence it among other things, the level education, work , knowledge about anemia, as well as compliance in taking substance tablets iron . Inspection hematocrit method micro use blood capillary proven practical, efficient, and can made into tool

screening beginning For detecting anemia in mothers pregnant in a facility health level First.

Share the energy health, it is recommended For increase education and counseling nutrition for Mother pregnant, especially about importance consumption nutrient -rich foods iron and obedience in taking Fe tablets. For mothers pregnant, it is expected that you will do it regularly inspection pregnancy and examination hematocrit in a way periodically to monitor anemia status since early. For researchers next, it is necessary done study with amount more samples size and method more analysis comprehensive For evaluate connection between level hematocrit, levels hemoglobin, as well as factors influential nutrition during pregnancy.

References

Arisman, M. B. (2010). Gizi dalam daur kehidupan. EGC.

BMC Public Health. (2024). Prevalence and determinants of anemia among pregnant women: A global review. BMC Public Health, 24(3), 2145.

Fatonah, S. (2016). Gizi dan kesehatan untuk ibu hamil. Erlangga.

Fikawati, S., Syafiq, A., & Veratamala, A. (2020). Gizi ibu dan bayi. Rajagrafindo Persada.

Gandasoebrata, R. (2013). Penuntun laboratorium klinik (Edisi ke-16). Dian Rakyat.

Kementerian Kesehatan Republik Indonesia. (2022). Laporan nasional Riset Kesehatan Dasar (Riskesdas) tahun 2022. Badan Penelitian dan Pengembangan Kesehatan.

Kementerian Kesehatan Republik Indonesia. (2022). Pedoman pencegahan dan penanggulangan anemia pada ibu hamil. Direktorat Gizi Masyarakat.

Kiswari, R. (2014). Hematologi dan transfusi darah. Erlangga.

Medica Arteriana. (2024). Correlation of hematocrit value with hemoglobin level in pregnant women using micro method. Medica Arteriana Journal, 9(1), 45–52.

Milman, N. (2019). Iron deficiency and anemia in pregnancy: Modern aspects of diagnosis and therapy. European Journal of Haematology, 102(3), 298–306. https://doi.org/10.1111/ejh.13205

Noronha, J. A., Bhaduri, A., Vinod, B., & Jacob, G. P. (2018). Maternal anemia: A preventable cause of adverse pregnancy outcomes. Journal of Family Medicine and Primary Care, 7(4), 728–732. https://doi.org/10.4103/jfmpc.jfmpc_148_18

Proverawati, A. (2013). Anemia dan anemia kehamilan. Nuha Medika.

Tarwoto, & Wasnidar. (2022). Asuhan keperawatan pada ibu hamil dengan anemia. Trans Info Media.

World Health Organization. (2023). The global prevalence of anaemia in women of reproductive age (2012–2021). World Health Organization.

Wulandari, A., Rahayu, M., & Ariyadi, T. (2021). Perbandingan pemeriksaan hematokrit metode mikro dan hematology analyzer pada ibu hamil. Jurnal Teknologi Laboratorium Medik, 6(2), 55–61.