# Relationship between Nutritional Status and Postoperative Outcomes of Breast Cancer

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| Article Info | Abstract |
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| | *Breast cancer is the most common cancer in the world which is expected to increase morbidity and mortality rates . Nutritional status is an indicators that can be used to predict post-operative breast cancer outcomes . Breast cancer patients with poor / more nutritional status has a higher risk of experiencing more post-operative complications . This study was conducted to determine the nutritional status with post-operative outcomes in breasts Cancer patients. To determine the relationships between nutritional status (BMI) and post-operative outcomes in breast cancer patients at the Ibnu Sina Hospital Makassar. This study is cross -sectional analytic study, using a total sampling method with a total of 55 samples from patients medical records . Data analysis used the Chi- square test to assess whether there was a relationship. Obtained a significant relationships between nutritional status and length of stay (p = 0.002), and lymphedema (p = 0.027). While the relationships between nutritional status and post-operative wound complications was obtained (p = 0.052), ." history (p = 0.171). There is a relationships between nutritional status and post-operative outcomes for breasts Cancer.* |

## Introduction

Cancer breast is a malignant tumor of the breast, most often called ductal carcinoma or lobular. The general prognosis is good with level continuity live five years in a way overall above 90 % for all stages (Henry et al., 2020). From cancer, the most common breast is Hormone receptor-positive, and incidence increases especially among woman young. Cancer breast almost in a way exclusive is world disease, with only 1% of cancer occurring in men (Cuthrell & Tzenios, 2023). Most frequent locations of the occurrence of metastases in cancer are are lung and pleura (15-20%), bone (20-60%), liver (5-15%), brain (5-10%) and local/regional metastases (20-40%).

In 2018, there were 2,088,849 new cases worldwide representing 11.6% of all new cancers diagnosed that year. In the same period, 626,679 patients died of breast cancer, accounting for 6.6% of all cancer-related deaths, making it the second most common cause of cancer-related death after lung cancer (Zheng et al., 2019).

Referring to data presented by the Ministry of Health on January 31 2019, the cancer ranking in Indonesia is eighth in Southeast Asia and 23rd in Asia. On January 31 2019, the breast cancer rate was 42.1 per 100,000 population with an average death rate of 17 per 100,000 population (Sari, 2023).

Operation cancer breast usually considered an intervention with morbidity low. In Austria, data from *Breast Health Centers* show morbidity overall low with level revision at 5% and level infection place operation at around 2% (Panhofer et al., 2014). Similar data reported in Germany with level revisions averaged 3.1% and rate of infection injuries at 1.4%.

Index mass body (BMI) is associated with complications post operations in various types operation. Studies cohort in the United States recently This shown more results worse in thin patients and more mortality in patients obesity called the light obesity paradox (Ghoorah et al., 2016).

## Methods

The research conducted is study analytic with the use method of *total sampling,* which is purposive to know nutritional status of BMI in patients with cancer post- operative breast at Ibnu Hospital Sina Makassar City. On research, This used to record medical as research data.

## Result and Discussion

Study This is done at home Sick Ibn Sina Makassar in November - December 2022. Data was obtained from record medical, so 55 samples were obtained based on criteria inclusion and exclusion.

Table 1. Characteristics Sample

| Variable | Frequency (n) | Percentage (%) |
|---|---|---|
| **Nutritional status** | | |
| Malnutrition | 8 | 14.5 |
| Nutrition Good | 29 | 52.7 |
| Nutrition More | 18 | 32.7 |
| **Total** | **55** | **100** |
| **Length of Hospitalization** | | |
| ≤5 days | 30 | 54.5 |
| >5 days | 25 | 45.5 |
| **Total** | **55** | **100** |
| **Complications** | | |
| Infection | 7 | 12.7 |
| No infection | 48 | 87.3 |
| **Total** | **55** | **100** |
| **Lymphedema** | | |
| Yes | 3 | 5.5 |
| No | 52 | 94.5 |
| **Total** | **55** | **100** |
| **Chemotherapy History** | | |
| There is | 42 | 76.4 |
| No There is | 13 | 23.6 |
| **Total** | **55** | **100** |

Table 1. shows that There were 29 respondents (52.7% ) with good nutritional status. There were 18 respondents (32.7%) with nutritional status. Meanwhile, nutritional status was not enough for as many as 8 respondents (14.5%). There were 30 respondents (54.5%) with a long stay stay ≤5 days. Meanwhile, 25 respondents (45.5%) had a long stay stay >5 days. There

were 48 respondents (87.3%) who did not experience infection. Meanwhile, 7 respondents (12.7%) experienced this infection. There were 52 respondents (94.5%) who did not experience lymphedema. Meanwhile, 3 respondents (5.5%) experienced this lymphedema. There were 55 respondents (100%) who did not die. There were 42 respondents (76.4%) who had a history of chemotherapy. Meanwhile, 13 respondents (23.6%) did not have a history of chemotherapy.

**Table 2. Relationship to Nutritional Status with Postoperative Outcomes**

| Nutritional status | Length of Hospitalization | | p | Complications | | p | Lymphedema | | p | Chemotherapy History | | p |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <5 days (%) | >5 days (%) | | Infection (%) | No Infection (%) | | There is (%) | There is (%) | | Yes (%) | No (%) | |
| Malnutrition | 8.3 | 57.1 | | 14.3 | 14.6 | | 16.7 | 16.7 | | 0 | 14.5 | |
| Nutrition Good | 58.3 | 14.3 | 0.002* | 14.3 | 58.3 | 0.052 | 57.1 | 57.1 | 0.027* | 0 | 52.7 | 0.171 |
| Nutrition More | 33.3 | 28.6 | | 71.4 | 27.1 | | 26.2 | 26.2 | | 0 | 32.7 | |

Source : Significant ( *p:* < 0.005)**Chi-square* test

Table 2. shows that patients with a long care stay ≤5 days experienced nutrition not enough as many as 4 samples (8.3%), nutrition Good as many as 28 samples (58.3%), nutrition more as many as 16 samples (33.3%). Whereas patients with long care stay >5 days with circumstances nutrition not enough as many as 4 samples (57.1%), nutrition good 1 sample (14.3%), nutrition more than 2 samples (28.6%). Based on statistical tests *Chi-Square* obtained mark $p = 0.002$. So concluded that there is a connection between nutritional status with long care hospitalization in post-operative patients with cancer breasts at Home Sick Ibn Sina Makassar, however seen that the trend occurs during a long stay stay ≤5 with nutrition good (58.3%) compared with nutritional status other (Tsaousi et al., 2014).

Patients who experience post-operative infection with nutrition not enough as many as 1 sample (14.3%), nutrition as many as 1 sample (14.3%), nutrition as many as 5 samples (71.4%). Whereas patients who do not experience an infection with circumstances nutrition not enough as many as 7 samples (14.6%), nutrition good 28 samples (58.3%), and nutrition more than 13 samples (27.1%). Based on statistical tests *Chi-Square* obtained mark $p = 0.052$. So concluded that there is a connection between nutritional status with incident complications in postoperative patients with cancer breasts at Home Sick Ibn Sina Makassar, visible from the trend No happen complications on nutritional status good (58.3%) compared with a nutritional status other (Kahanya, 2016).

Patients with lymphedema experience nutrition more as many as 2 samples (66.7%), nutrition Good as many as 1 sample (33.3%). Whereas patients who do not experience lymphedema with circumstances nutrition not enough as many as 18 samples (34.6%), nutrition good 28 samples (53.8%), nutrition more than 6 samples (11.5%). Based on statistical tests *Chi-Square* obtained mark $p = 0.027$. So concluded that there is a connection between nutritional status with incident lymphedema in postoperative patients with cancer breasts at Home Sick Ibn Sina Makassar, however trend No happen lymphedema on nutritional status is good (53.8%) compared with other nutritional status (Mandal et al., 2021).

24 patients had a history of chemotherapy with good nutritional status (57.1%), 11 samples (26.2%) were overnourished, and 7 samples (16.7%) were undernourished. Meanwhile, there were 7 samples (53.8%) of patients who did not have a history of chemotherapy, 5 samples (38.5%) had more nutritional status, and 1 sample (7.7%) had less nutrition. Based on the *Chi-square* test, the *p*-value = 0.171. So, it was concluded that there was no relationship between nutritional status and history of chemotherapy in breast cancer patients at Ibnu Sina Hospital Makassar, as seen from the tendency of patients with a history of chemotherapy to have good nutritional status (57.1%) compared to other nutritional status.

## Relationship to Nutritional Status with Length of Hospitalization

Results from the data obtained based on record medical There were 30 respondents (54.5%) with a long stay stay ≤5 days. Meanwhile, 25 respondents (45.5%) had a long stay stay >5 days. Based on statistical tests *Chi-Square* obtained mark $p = 0.002$. So concluded that there is a connection between nutritional status with long-term care hospitalization in post-operative patients with cancer breasts at Home Sick Ibn Sina Makassar, however seen that the trend occurs during a long stay stay ≤5 with nutrition good (58.3%) compared with nutritional status other.

Study This supports a study previously, carried out by Fahmi et al. (2023) in East Java. The research design namely cross-sectional, with the technique taking total sample-based sampling criteria inclusion and exclusion, with an amount of 34 respondents. The result of the relationship to nutritional status with long care stay is $p = 0.001$ ( $p < 0.05$). Study This show that There is a connection between nutritional status with long care stays, with thereby There is a trend child with nutritional status undernutrition and malnutrition more than the days are long long-term care (DeLacey et al., 2020). Nutritional status is very important for the healing process wound post operations, p This is known that poor nutritional status will slow down healing wound consequence lack of vitamins, minerals, protein and essential substances in the wound healing process .

## Relationship between Nutritional Status and Postoperative Wound Complications

Results from the data obtained based on record medical showed 48 respondents (87.3%) who did not experience infection. Meanwhile, 7 respondents (12.7%) experienced this infection.

Based on statistical tests *Chi-Square* obtained mark $p = 0.052$. So concluded that No there is connection between nutritional status with incident complications in postoperative patients cancer breasts at Home Sick Ibn Sina Makassar, visible from trend No happen complications on nutritional status good (58.3%) compared with other nutritional status.

Study This support study previously, which was carried out by Harefa et al (2023) at RSUD Dr. Abdul Moeloek Bandar Lampung. Type study in form analytic observation , with taking sample accidental sampling technique, 35 samples . Results obtained from nutritional status with complications wounds in post appendectomy patients is $p = 0.361$ ( $p > 0.05$). That matter in accordance with theory that states, if nutritional status patient Good so healing the wound will also be good.

Different with research conducted by Karim et al. (2023) at Adam Malik Regional Hospital, Medan. There are connection between nutritional status with complications post- operative wounds. Frequent complications happen covers fever , pus on the wound surgery , wounds operation wet , hematoma , up to shock septic . In studu observational state that There is trend connection between low albumin with incident complications post operation.

If substance required nutrition No Enough will affect the healing process wound , raise sensitivity to infection , infection enhancement incident complications . BMI becomes indicator rate adiposity in body somebody. Fat plays a role important in structure and function of cell membranes For synthesis cell body. Lack of body fat can postpone healing wound will but obese patients or excess internal fat network can increase risk infection in the wound Because supply blood network adipose No adequate.

## Relationship between Nutritional Status and Lymphedema

Results from the data obtained based on record medical showed 52 respondents (94.5%) who did not experience lymphedema. Meanwhile, 3 respondents (5.5%) experienced this lymphedema.

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Based on statistical tests *Chi-Square* obtained mark $p = 0.027$. So concluded that there is connection between nutritional status with incident lymphedema in postoperative patients cancer breasts at Home Sick Ibn Sina Makassar, however trend No happen lymphedema on nutritional status good (53.8%) compared with other nutritional status.

Study This support study previously carried out by Petrek et al. (2001). Method used is approach *Cross sectional* with a total of 58 samples in a way *purposive sampling*. Statistical results from connection obesity with incident lymphedema in patients cancer breast obtained $p = 0.001$. So can concluded There is connection between obesity with incident lymphedema in patients breast cancer.

Fluctuation Post - operative weight gain also increases risk of lymphedema. Patient with a pre-operative BMI >30 will experience fluctuation weight during maintenance For cancer breasts, so need consideration of more risks high in lymphedema.

**Relationship between Nutritional Status and History of Chemotherapy**

Results from the data obtained based on record medical show there were 42 respondents (76.4%) who had history chemotherapy. Meanwhile, 13 respondents (23.6%) did not own history chemotherapy.

Based on the *Chi-square* test obtained mark $p = 0.171$. So, concluded that No there is connection between nutritional status with history chemotherapy in patients cancer breasts at Home Sick Ibn Sina Makassar, visible from trend patient with history chemotherapy who had good nutritional status (57.1% ) compared with nutritional status other.

Study This support study previously carried out by Aji et al. (2020) at home Sick Dr. Kariadi Semarang. With design study *cross sectional*, retrieval sample done in a way *consecutive sampling* with a total of 29 samples. Result of study from connection intake eating and nutritional status of patients cancer post- chemotherapy cervix obtained mark $p = 0.221$. So, no There is connection between intake eating and nutritional status with post chemotherapy.

Research result No meaningful can caused Because a number of the subject who has intake Eat with deficit heavy after do it chemotherapy but the nutritional status of the subject No experience decline. Condition the because needed longer time for recording intake Eat subject so that can changing post-chemotherapy nutritional status.

No all the patient did chemotherapy experience decline overweight / malnutrition Because a number of the patient did chemotherapy own sensitivity is not The same to effect nauseous vomiting induced by treatment chemotherapy. If it happens nauseous vomit Because substance anti - tumor inducing hypothalamus as well as chemoreceptors brain, so consumption food can decrease in a way directly to the patient cancer. So, if patient No experience effect side chemotherapy form nauseous vomit so consumption the food remain normal or can increase.

## Conclusion

There is meaningful relationship between nutritional status with incident lymphedema , and nutritional status with long care stay . However , no there is meaningful relationship between nutritional status with complications post- operative wounds , and nutritional status with history chemotherapy. Study furthermore expected do study with different designs , and can add amount samples and variables , so results study more clear and meaningful.

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