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Analysis of Benefits and Risk Factors of Pedicle Screw Posterior Stabilization with Decompression at RSU Royal Prima Medan

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Abstract— *This study aims to analyze the benefits that are risk factors that influence pedicle screw surgery, either with posterior stabilization or decompression in patients with vertebral abnormalities based on BMI at RSU Royal Prima Medan. This study was a non-experimental retrospective case-control method with a mixed-method, samples were taken using the purposive sampling technique in patients with vertebral abnormalities at RSU Royal Prima Medan, the conditions were to meet the inclusion and exclusion criteria. Research data from medical records, and questionnaires from patients from September 2014 to August 2021 totaled 624, recorded experiencing vertebral abnormalities, of which 243 people met the criteria. The results were based on p-values for age (0.33> 0.05), gender (0.007 <0.05), surgery time (0.991 > 0.05), blood transfusion (0.258 > 0.05),*

Keywords— *Risk Factors, Benefits, Pedicle Screw, Vertebral Disorders, BMI.*

I. INTRODUCTION

Obesity is a big problem that until now has not been completely resolved. According to WHO, the definition of obesity is excessive fat accumulation due to an imbalance in energy intake (energy intake) with the energy used (energy expenditure) for a long time or is defined as abnormal or excessive fat accumulation that can interfere with health with measurements based on BMI according to WHO with a value or score 30. Body mass index (BMI) is a simple weight-for-height index commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m2)(Ministry of Health, 2017; WHO, 2020).

The introduction of modern technology and lifestyle changes that occur from one generation to another, especially in today's young generation has caused many changes, especially in the frequency and intensity of physical activity, sleep quality, unhealthy eating patterns, and poor physical and mental health of a person. lead to decreased quality of life. Especially the current Coronavirus Disease 2019 (COVID-19) pandemic, requires everyone to reduce outdoor activities and self-quarantine so that it affects lifestyle, especially a sedentary lifestyle which causes lipid accumulation in the body as a result of disturbed body metabolism due to an unhealthy lifestyle. healthy. (Knebusch et al., 2021; Sondang and Bulan, 2021).

The number of negative impacts caused by obesity, both physically and psychologically, causes a decreased quality of life such as increasing the risk of metabolic and cardiovascular diseases, and one of them increasing the workload on our body's supports, namely bones or the musculoskeletal system such as osteoarthritis, disturbed bone metabolism that causes osteoporosis. which in patients with a high BMI will increase the risk factors for fracture or vertebral deformity (such as scoliosis, kyphosis, or lordosis). Since 1975, obesity has tripled worldwide in 2016. In 2016, more than 1, 9 billion people aged 18 years and older are overweight and 650 million of them are obese with a percentage of 39% of adults aged 18 years and over being overweight and 13% obese. Not only in adults but obesity can also be experienced by children with a total of 340 million at the age of children and adolescents being overweight or obese in 2016. And in 2019, it is estimated that 38.2 million children under the age of 5 years are overweight. weight or obesity. Once considered a problem in high-income countries, overweight and obesity are now increasing in low- and middle-income countries, especially in urban areas. (Ministry of Health, 2017; WHO, 2020).

Based on the 2018 National Basic Health Research (Riskesdas) report in Indonesia, the prevalence of obesity in people aged 18 years and over increased from 14.8% in 2013 to 21.8% in 2018 with the highest prevalence in the 40-44 year age range. with a percentage of 29.6%. (Ministry of Health RI, 2018).

Humans have a spine or vertebra that functions as the main support for the burden of the body, which consists of several parts, namely cervical, thoracic, lumbar, sacral, and coccygeal. On each side of the vertebra, there is a strong structure that has a function as a support for the load that the vertebra gets, namely the pedicle. The pedicle is the connecting part between the anterior and posterior vertebral columns, and in each vertebra, the pedicle has a different size from each region. (Limoa, 2020).

There are various kinds of abnormalities found in the musculoskeletal system, ranging from osteoarthritis, vertebral structural abnormalities, fractures (trauma), osteoporosis, and many more. In the case of abnormalities in the structure of the vertebral column, stabilization can be done, namely by operative action using the pedicle screw technique. Given the anatomy of the vertebrae starting from the cervical, thoracal, lumbar, and sacrum. Among the five regions of the vertebrae,

the one with the highest mobility is the lumbar vertebra. However, due to their high mobility, This section is also often injured due to pressure from the ring/annulus on the vertebra which has spinal nerves that cause pain and over time will cause the nucleus to come out of the annulus and will also increase if someone with excess weight will put a burden on the supporting vertebrae. The weight of the body also increases which can result in injury. To treat musculoskeletal disorders can be treated, either traditionally or by using pharmacology and operative measures, one of which is the use of the pedicle screw operative technique that has been used for a long time, namely by Boucher 1959. The management of a disease or disorder depends on the severity of the illness. (Murray, 2014; Chinthan et al., 2018; Rsud and Johannes, 2020).

Pedicle screwis the gold standard in the management of stabilization, bone arrangement, or bone fusion in operative procedures for posterior spinal stabilization by implanting screws in the pedicle part of the vertebra, which serves to treat cases of a disease in the vertebrae or spine that are degenerative in nature, trauma, infection, and neoplasm or malignancy. The usual regions or parts that receive operative treatment are in the lumbar and sacral regions, but in some cases, it is also used in the cervical and thoracic regions which are quite risky to do. (Murray, 2014; Chinthan et al., 2018; Limoa, 2020).

Pedicle screwhave various sizes and have various methods (stabilization and decompression) in doing so depending on the part or region of the vertebra where the implant surgery will be carried out. The pedicle screw technique has been controversial in recent decades because of its success in its safe and effective operation by improving the patient's quality of life by strengthening and restoring the normal function of the vertebrae, both as a supporter of the body's load and the nervous system. Pedicle screws have been widely used in the operation of patients with spinal disorders. This operation is also not free from shortcomings, (Murray, 2014; Kornah et al., 2020).

From the explanation described above, the researcher wanted to know by analyzing whether or not there was a relationship in the handling of the pedicle screw technique in patients with vertebral disease or abnormalities in obese patients and what the difference was in patients who received the same treatment but were not obese and had different problems. as well as assessing whether there are benefits from the pedicle screw surgical management performed.

II. Literature Review

2.1. Definition of Obesity

Obesity is a big problem that until now has not been completely resolved. According to WHO, the definition of obesity is excessive fat accumulation due to an imbalance in energy intake (energy intake) with energy used (energy expenditure) for a long time or is defined as abnormal or excessive fat accumulation that can interfere with health with measurements based on BMI according to WHO with a value or score 30. Body mass index (BMI) is a simple weight-for-height index commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m2)(Ministry of Health RI, 2017).

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2.2. Etiology of Obesity

There are several factors that can lead to a state of obesity. Based on the etiology, obesity can be divided into two, namely:

1. *Primary obesity*

Primary obesity is caused by excessive nutritional intake. Usually occurs in people who find it difficult to regulate food consumption.

2. *Secondary obesity*

Secondary obesity was not associated with food consumption. Secondary obesity is obesity caused by a disorder or disease such as hypothyroidism, hypogonadism, hypercortisolism, and so on.(Gustirand, 2019)

2.3. Risk factors for obesity

The risk factors that contribute to obesity include:

1. *Genetic factors*

Some of the hereditary diseases that are most clearly associated with obesity include Prader-Willi syndrome and Bardet-Biedel syndrome. A person's fat or thin body depends on the DNA factor which is the basic genetic molecular component composed of nucleotides. Adolescents who have parents with obese bodies will inherit a low metabolic rate and a tendency to be overweight when compared to adolescents who have parents with normal weight. The increase in the incidence of obesity in most cases is not genetic but external factors that play a bigger role.(Gustirand, 2019)

2. *Socio-economic status*

The income of a person also influences the occurrence of obesity. A person with a large income can buy any type of food, be it nutritious food, healthy food, high-calorie foods such as fast food, junk food, soft drinks and many others. A person with a low income tends to consume less nutritious food or less hygienic food which can cause a bad body condition for them.(Gustirand, 2019)

3. *Food quantity and quality*

Increased consumption of processed foods that are easy to consume causes a shift in eating habits in adolescents. These foods are ready prepared food and fast food which have a higher energy density than traditional foods in general, causing excessive energy intake.(Gustirand, 2019)

4. *Technology advances*

Technological advances cause people not to carry out activities manually that require a lot of energy. More people are using motorized vehicles than people walking or cycling. Computers, the internet, and video games have also become a way of life in this era of globalization. This causes a lack of

physical activity in today's teenagers and adults.(Gustirand, 2019; Sondang and Bulan, 2021)

5. *Environment*

The behavior of daily life and the culture of a society will affect certain eating habits and physical activities. The family environment plays a very important role in eating patterns and activities carried out in daily life. This is also related to education around the environment. Including in the era of the COVID-19 pandemic which affects physical activity and sleep quality will be disrupted.(Gustirand, 2019; Sondang and Bulan, 2021)

6. *Psychological aspects*

Food intake in each individual can be influenced by mood, mental conditions, personality, self-image, body shape perception, and attitudes towards food in a social context.(Gustirand, 2019).

2.4. Fat distribution

Obesity is closely related to lipid profile and distribution. Obesity can be distinguished based on the distribution of fat into 2, among others:

1. *Central obesity*

This obesity is also called "Apple Shape Obesity" or "android obesity" which prevalence is more often found in men. In obesity, there is accumulation of lipids in the abdominal area, lipid accumulation occurs both intraperitoeal and retroperitoneal. Central obesity patients have a higher risk factor for disease because the fat in the abdomen can be released into the blood vessels at any time. There was hyperplasia of fat cells and waist-hip ratio (WHR) > 0.90. Saturated fat is the fat that dominates in central obesity.

2. *Peripheral obesity*

Obesity is more common in women. In obesity, there is an accumulation of lipids in the lower part of the body, namely in the thigh and stomach area or according to medical terms it is called the gluteofemoral region. Obesity is often also called "gynecoid obesity" or "peer shape obesity". The difference with central obesity is that in this obesity there is hypertrophy of fat cells and a Waist-Hip Ratio (WHR) < 0.85 is found.(Gustirand, 2019)

2.5. Measurement/ Diagnosis of Obesity

Obesity is a disease characterized by the accumulation of excess body fat tissue. Body mass index (BMI) is a simple measure of weight for age that is used to classify obesity. BMI is also the method most often used as a parameter to detect obesity. Another approach that can be used to detect obesity is an anthropometric approach by measuring skin fold, densitometry, MRI, Dual Energy X-Ray Absorptiometry (DEXA) and Bioelectrical Impendance Analysis (BIA).(Gustirand, 2019)

2.6. Clinical Impact of Obesity

The increase in fat mass is always accompanied by physiological changes in the body whose clinical impact usually depends on the regional distribution of the fat mass. Accumulation of fat mass in the thorax causes impaired respiratory function, while intra-abdominal obesity will encourage the development of hypertension, increased plasma insulin levels, insulin resistance syndrome, hypertriglyceridemia, and hyperlipidemia. Obesity is a major risk factor for cardiovascular disease. According to existing research there is an increase in cardiovascular disease. According to existing research, there is an increase in cardiovascular disease in people with an excess body mass index. Insulin resistance, dyslipidemia, and hypertension that occur together are characteristics of the metabolic syndrome, also known as syndrome X. Some of the mechanisms associated with obesity and hypertension include increased blood volume as a result of increased salt retention. Increased intake of energy, protein, and carbohydrates will increase plasma catecholamines and sympathetic nervous system activity.(Gustirand, 2019)

TABLE 1. Interpretation of nutritional status according to WHO

BMI	Nutritional status
Below 18.5	Underweight
18.5–24.9	Normal weight
25.0–29.9	Pre-obesity
30.0–34.9	Obesity class I
35.0–39.9	Obesity class II
Above 40	Obesity class III

2.7. Relationship between obesity and musculoskeletal disorders

Obesity has a bad impact on health as described in the previous material, one of which is musculoskeletal disorders. Obesity is closely related to heavy body weight, so that bones as a support for the body will increase their burden such as osteoarthritis and in addition increase the risk of increased inflammation such as in autoimmune diseases, namely rheumatoid arthritis, which causes inflammation of the synovial joints or from an inadequate metabolic system. either cause the risk of osteoporosis even though they are young but with excess body weight or obesity, which causes the bones of obese patients to be prone to fracture. If you are traumatized, It can also be found that one of the patients will often experience lower back pain as a result of suppression of the pulposus. In obese patients with the habit of sitting position or other activities that are wrong, it can affect bone structure,

such as kyphosis, lordosis and even scoliosis even though there is no history of experiencing it before.(Andini, 2019).

2.8. Anatomy of the Vertebrae/Spine

The spine is medically known as the vertebral column (Malcolm, 2002). The spinal column is a flexible structure formed by a number of bones called vertebrae or vertebrae. Between each of the two vertebrae is a cartilaginous cushion. The length of the spinal cord in adults reaches 57 to 67 centimeters. Altogether there are 33 bones, 24 of which are separate bones and the remaining 9 vertebrae are later fused into 5 sacrum and 4 coccyx (Pearce, 2006).

Vertebral bone is a complex structure which is broadly divided into 2 parts. The anterior part is composed of the vertebral bodies, intervertebral discs (as articulations), and is supported by the anterior and posterior longitudinal ligaments. While the posterior part is composed of the pedicle, lamina, vertebral canal, as well as the transverse and spinous processes which are the sites for the muscles that support and protect the vertebral column. The posterior parts of the vertebrae are connected to each other by apophyseal (facet) joints. Vertebral stability depends on the integrity of the vertebral bodies and intervertebral discs as well as on two types of supporting tissue, namely ligamentous (passive) and muscular (active).(Anis Fitria, 2018)

The function of the vertebral column or spinal column is to work as a solid support for the body while also working as a support through the intervertebral disc cartilage whose curvature provides flexibility and allows it to bend without breaking. The discs are also useful for absorbing the shock that occurs when moving heavily, such as running and jumping, and thereby protecting the brain and spinal cord against shock. The pelvic girdle is the link between the body and the lower limbs. Part of the axial skeleton, or the sacrum and coccyx bones, which are sandwiched between the two coxal bones, also forms this bone. The two coxal bones are joined to each other at the pubic symphysis(Anis Fitria, 2018).

The vertebrae in the vertebral column form alternating lordosis and kyphosis curves when viewed in the sagittal plane. The cervical and lumbar segments form a lordosis curve where the degree of lordosis in the cervical segment is smaller than the degree of lordosis in the lumbar segment. The thoracic and sacrococcygeal segments form a kyphotic curve. The position of the curve in the neutral position is not an absolute position. Between the vertebrae are connected by intervertebral discs which allow for dynamic movement(Anis Fitria, 2018).

III. METHOD OF RESEARCH

The purpose of this study was to determine the factors that influence and benefit from the use of the pedicle screw technique (posterior stabilization and decompression) in patients with vertebral abnormalities, whether obese or not.

1. To find out the relationship between age and sex which is an obstacle in handling surgical procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who are obese and patients who are not obese.
2. To find out the incidence of vertebral abnormalities, by comparing the percentage of events in patients with vertebral abnormalities with obesity or non-obesity based on disease diagnosis.
3. To determine the presence or absence of obstacles by comparing obese and non-obese patients at the time of pedicle screw surgery by comparing the stabilization method with decompression (starting from the time of surgery, the presence or absence of blood transfusions).
4. This study aims to determine whether there is a decrease in the percentage of pain in patients with vertebral abnormalities undergoing pedicle screw surgery procedures.
5. This study aims to determine whether there is a decrease in the disability rate of patients with vertebral abnormalities with obesity or without obesity after pedicle screw treatment.
6. To assess the difference between posterior stabilization and decompression by looking at the presence or absence of an injured nervous system after receiving pedicle screw surgery.
7. To determine the effectiveness (outcome) of the pedicle screw on the quality of life in obese or non-obese patients.

This study is a non-experimental study that uses a retrospective case control analysis method with qualitative and quantitative approaches obtained from the medical records of patients who received pedicle screw technique surgery which is divided into posterior stabilization methods and a combination of posterior stabilization – decompression in the management of patients with vertebral abnormalities. , whether caused by infection or non-infection by looking at the results of the examination, especially the patient's status (age and gender), neurological status of the patient, assessment of the patient's condition with a visual analog scale based on pain, Oswestry Disability Index which assesses the severity of disability or disability. . Data taken from September 2014 – August 2021.

This research was conducted in August – September 2021 at the Royal Prima Hospital located at Jalan Ayahanda No. 68A, Sei Putih Tengah, Medan Petisah District, Medan City, North Sumatra.

The population used is patients at the Royal Prima Hospital, which is taken from medical record data with a time span from September 2014 – 2 months August 2021, totaling approximately 624, and after being described by total sampling using the slovin formula, the total number is obtained. from a sample of the population, namely 243 samples who underwent pedicle screw surgery treatment using a sample of inclusion and exclusion criteria (purposive sampling), namely:

1. Inclusion: patients who underwent pedicle screw technique surgery in patients aged 18 years and over (either due to trauma, degenerative, bone deformities, and neoplasms).
2. Exclusion: Patients under 18 years of age who received pedicle screw surgery or other procedures.

IV. ANALYZE AND RESULT

4.1. Characteristics of Respondents Based on Age

The following are the results of the research that explain the characteristics of respondents based on the age of the respondents, which are presented in the following table:

TABLE 2. Characteristics of Respondents Based on Respondent Age

Age	Frequency	Percentage (%)
18 – 30 Years	67	27.6
31 – 40 Years	50	20.6
>41 Years	126	51.9
Total	243	100

Tables 2 describes the characteristics of respondents based on the age of the respondents, from the research results of respondents aged 18-30 years as many as 67 respondents with a percentage of (27.6%), respondents aged 31-40 years as many as 50 respondents with a percentage of (20, 6%), then for respondents aged >41 years as many as 126 respondents with a percentage of (20.6%) of the total 243 respondents.

4.2. Characteristics of Respondents Based on Gender

The following are the results of the research that explain the characteristics of respondents based on gender, which are presented in the following table:

TABLE 3. Characteristics of Respondents Based on Respondent's Gender

Gender	Frequency	Percentage (%)
Man	112	46.1
Woman	131	53.9
Total	243	100

Source: Primary data processed 2022

Tables 3 describes the characteristics of respondents based on the gender of the respondents, from the results of the study, respondents with male sex were 112 respondents with a percentage of (46.1%), then for respondents with female sex were 131 respondents with a percentage of (53 ,9%) of the total 243 respondents.

4.3. Characteristics of Respondents Based on Marital Status

The following are the results of the study that explain the characteristics of respondents based on marital status, which are presented in the following table:

TABLE 4. Characteristics of Respondents Based on Respondents' Marital Status

Marital status	Frequency	Percentage (%)
Not married yet	64	26.3
Marry	171	70.4
Widower widow	8	3.3
Total	243	100

Source: Primary data processed 2022

Tables 4 describes the characteristics of respondents based on the respondent's marital status, from the research results of respondents who are not married as many as 64 respondents with a percentage of (26.3%), respondents who are married as many as 171 respondents with a percentage of (70.4%), and respondents who are widowed/widowed are 8 respondents with a percentage of (3.3%) of the total 243 respondents.

4.4. Qualitative Method Results

The results of this qualitative research method were obtained by using in-depth interviews directly with informants as a form of searching and direct documentation in the field. Then the researcher also uses observation techniques as a way to complete the data that has been found. Researchers also use a qualitative approach to see the natural conditions of a phenomenon. This approach aims to gain understanding and describe a complex reality. Research with a qualitative approach is a research procedure that produces descriptive data in the form of written or spoken words based on people or observed behavior.

4.5. Interview Results

The first researcher interviewed informants 1 to 6 with the questions, namely:

1. Can you handle the intensity of the pain?

Informant's Answer

The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:

Informant 1: "I can tolerate the pain that I experience without having to use painkillers".

Informant 2: "The pain is severe, but I can handle it without having to take pain medication".

Informant 3: “Pain medication gave me total relief from pain.”

Informant 4: “Pain healing gives me moderate relief from pain”.

Informant 5: “Pain treatment gives me some relief from Pain”.

Informant 6: "pain relievers have no effect on my pan".

2. Can you do personal care without causing pain?

Informant's Answer

The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:

Informant 1: "I can take care of myself normally without causing increased pain".

Informant 2: “I can take care of myself normally, but it increases my pain”.

Informant 3: “It is very painful to take care of myself, and I am slow and careful”

Informant 4: “I need help, but I can manage most of my personal care”.

Informant 5: “I need help every day in most aspects of my care”.

Informant 6: "I don't get dressed, wash with difficulty, and stay in bed".

3. Can you lift weights without increasing the pain?

Informant's Answer

The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:

Informant 1: "I can lift heavy weights without increasing the pain".

Informant 2: "I can lift heavy weights, but it causes increasing pain".

Informant 3: “Pain prevents me from lifting heavy weights off the floor, but I can manage it if the weight is positioned comfortably (for example, on a table)”
Informant 4: “Pain prevents lifting heavy weights, but I can handle light to moderate loads if positioned comfortably”.
Informant 5: "I can only lift very light weights".
Informant 6: "I can't lift or carry anything at all".
4. Can you travel long distances when you are sick?
Informant's Answer
The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:
Informant 1: "Pain does not prevent me from walking far".
Informant 2: “Pain prevents me from walking more than a mile”.
Informant 3: “Pain prevents me from walking more than 1/2 mile”
Informant 4: “Pain prevents me from walking more than 1/4 mile”.
Informant 5: “I can only walk with crutches or a cane”.
Informant 6: “I was in bed most of the time and had to crawl to the toilet”.
5. Can you sit anywhere without feeling aches or pains?
Informant's Answer
The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:
Informant 1: "I can sit in any chair as long as I like".
Informant 2: "I can only sit in my favorite chair as long as I like".
Informant 3: “Pain prevents me from sitting for more than 1 hour”
Informant 4: “Pain prevents me from sitting for more than 1/2 hour”.
Informant 5: “Pain prevents me from sitting for 10 minutes”.
Informant 6: "The pain prevents me from sitting at all".
6. Can you stand without feeling any pain or discomfort?
Informant's Answer
The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:
Informant 1: "I can stand as long as I want without increasing pain".
Informant 2: “I can stand as long as I want but, it increases my pain”.
Informant 3: “Pain prevents me from standing for more than 1 hour”
Informant 4: “The pain prevents me from standing for more than 1/2 hour”.
Informant 5: “Pain prevents me from standing for more than 10 minutes”.
Informant 6: “The pain prevents me from standing at all”.
7. Can you sleep without feeling aches or pains?
Informant's Answer
The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:
Informant 1: "Pain does not prevent me from sleeping well".
Informant 2: "I can sleep well only by using painkillers".
Informant 3: “Even when I take pain medication, I sleep less than 6 hours”
Informant 4: "Even when I take pain medication, I sleep less than 4 hours".
Informant 5: "Even when I take pain medication, I sleep less than 2 hours".
Informant 6: "Pain prevents me from sleeping at all".
8. How is your social life when you feel pain or illness?
Informant's Answer
The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:
Informant 1: "My social life is normal and does not increase my pain.".
Informant 2: “My social life is normal, but my pain level is increasing”.
Informant 3: “Pain prevents me from participating in more energetic activities (eg sports, dancing)”
Informant 4: "pain prevents me from going out often".
Informant 5: “Pain has limited my social life in my home”.
Informant 6: “I have almost no social life because of my pain”.
9. Can you travel with aches or pains?
Informant's Answer
The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:
Informant 1: "I can travel anywhere without increasing pain".
Informant 2: “I can travel anywhere, but it increases my pain”.
Informant 3: “My pain limits my trip to more than 2 hours”
Informant 4: “My pain limits my trip to more than 1 hour”.
Informant 5: “My pain limits my trips to short trips that require a trip of under 1/2 hour”.
Informant 6: “My pain prevents all trips except visits to the therapist or hospital”.
10. Does the homework that you do can cause pain or pain?
Informant's Answer
The answers given by the informants differed depending on what was currently experienced by the patient, here are the answers to questions from each informant:
Informant 1: “My normal household/work activities do not cause pain”.
Informant 2: “My normal household/work activities increase the pain, but I can still do everything that is asked of me”.
Informant 3: “I can do most of my household/work tasks, but pain prevents me from performing more physically stressful activities (eg lifting, vacuuming)”
Informant 4: “pain prevents me from doing anything but light tasks”.
Informant 5: “Pain prevents me from doing even light tasks”.
Informant 6: “pain prevents me from doing any work or household chores”.

4.6. Discussion

1. Age and Gender Relationships That Are Obstacles In Handling Operative Actions Using Pedicle Screws

The results of the study on the relationship between age and sex that became obstacles in handling operative procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who were obese and patients who were not obese, age had a p value of 0.33 > 0.05, which states that age does not have a relationship with obstacles in handling surgical procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in obese and non-obese patients.

Gender has a p value of 0.007 < 0.05 which states that gender has a relationship with obstacles in handling operative procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in obese and non-obese patients. .

Based on the characteristics of patients in this study where the age was often >41 years, in accordance with the study of Hao et al where the average age of patients with thoracolumnal injuries was 40 years. In this study, injured patients who underwent surgery experienced a significant improvement in quality of life. This is indicated by the significant difference in ODI, VAS, and SF-36 scores between before and after surgery. This is also supported by a statistically significant test value (<0.05).

The results of this study are in line with research conducted by Matt et al (2016), the results of which say that age and gender are one of the most important factors Becoming Obstacles In Handling Operative Actions Using Pedicle Screws.

2. The Relationship of Operation Time Which Becomes An Obstacle In Handling Operative Actions Using Pedicle Screws

The results of the study on the relationship between operating time which became an obstacle in handling operative procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who were obese and patients who were not obese, operating time had a p value of 0.991 > 0, 05 which states that operating time does not have a relationship with obstacles in handling operative actions using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who are obese and patients who are not obese.

This study is in line with research conducted by Moon et al. The results said that operating time had no effect on obstacles in handling operative procedures using a pedicle screw. Open surgical treatment is also fraught with technical difficulties and can result in heavy blood loss and long operating times. In recent years, percutaneous instrumentation of non-ankylotic vertebral fractures has gained popularity, with similar results to open surgery with shorter operating times and reduced blood loss and length of hospital stay.

3. The Relationship of Blood Transfusions That Are Obstacles In Handling Operative Actions Using Pedicle Screws

The results of the study on the relationship of blood transfusions that became an obstacle in handling operative procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who were obese and patients who were not obese, blood transfusion had a p value of 0.258 > 0, 05 which states that blood transfusion does not have a relationship with obstacles in handling operative actions using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in obese and non-obese patients.

V. CONCLUSION

From the description of the research results above, the conclusions in this study are:

1. Gender has a relationship with obstacles in handling operative procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who are obese and patients who are not obese.
2. Operation time does not have a relationship with obstacles in handling surgical procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who are obese and patients who are not obese.
3. Blood transfusion has no relationship to obstacles in handling operative procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who are obese and patients who are not obese.
4. The Oswestry Disability Index (ODI) score has a relationship with obstacles in handling surgical procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in obese and non-obese patients.
5. *Visual Analog Scale*has a relationship with obstacles in handling operative procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who are obese and patients who are not obese.
6. BMI has a relationship with obstacles in handling surgical procedures using a pedicle screw by comparing the posterior stabilization method with a combination of posterior stabilization-decompression in patients who are obese and patients who are not obese.
7. There is a decrease in the disability rate of patients with vertebral abnormalities with obesity or without obesity after pedicle screw treatment
8. There is a decrease in the percentage of pain in patients with vertebral abnormalities undergoing pedicle screw surgery procedures
9. There is a difference between posterior stabilization and decompression by looking at the presence or absence of an injured nervous system after getting a pedicle screw operation

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