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COMPLICATIONS OF HIP HEMIARTHROPLASTY IN PATIENTS WITH DEMENTIA

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ABSTRACT

Age is one of the most important parameters influencing the occurrence of hip fractures in patients over the age of 65, whereas their mental state is a decisive factor. Older adults have eight times higher risk of dying of a hip fracture if we compared to those people without a hip fracture. The risk of death is very high in the first three months and it remains in first ten years. High incidence of hip fracture and dementia worldwide includes Europe and Middle East part of Europe, South America, Canada, United States and Asia. There is a very high probability that patients with hip fractures and dementia may develop delirium that will result in prolonged hospitalization and poor mobility.

Death is a rare complication of hip arthroplasty. Less than 1% patients in United States died, however in the first 90 days the postoperative mortality rate is somewhat higher than 1%. Otherwise, after revision surgery this rate increases. The most common complications of hip hemiarthroplasty that can be avoided by surgeons are: dislocation (posterior approach), and infection (the most common are Gram-positive *Staphylococcus aureus*- MRSA and Gram-negative bacillus). In one year the mortality rates will be over than half in the patients with deep infection and approximately 65% of patients with dislocation prosthesis in 6 months but also depends by type of prosthesis: monobloc (Austin Moore) or bipolar, cemented or uncemented. Other patient-related complications in the order in which they appear are pulmonary embolism, hematoma formation, unusual ossification, thromboembolism, nerve injury, fracture (periprosthetic). In patients who receive antiplatelet, anti-inflammatory, or anticoagulant therapy, it is necessary to stop the preoperative medication and to perform intraoperative hemostasis. During surgery, there is a risk to damage obturator vessels, perforating branch of femoralis artery and injury iliac vessels when drilling medial acetabular wall. In the last two decades thromboembolism has been prevented by physical therapy and socks with gradual compression. Depending on the type of surgeon's preferred type of proceedings, the following nerves may be injured: femoral nerve, sciatic nerve, and superior gluteal nerves.

Conclusion: The most common complications after hip arthroplasty are death, dislocation and infection. Monopolar Austin Moore and bipolar hemiarthroplasty has a beneficial effect on the patient by reintegration into everyday life, the ability to move and increases life expectancy.

Keywords: hip arthroplasty, dementia, complications.

INTRODUCTION

Age is one of the most important parameters influencing the occurrence of hip fractures in patients over the age of 65 but also their mental state is a decisive factor.

In orthopedic departments in hospitals, orthopedic trauma is very common and hip fractures are found in 20% of cases, 50% are intracapsular fractures of the femoral neck. Elderly have eight times higher risk of dying of a hip fracture if we compared to those people without a hip fracture. The risk of die it's very high in the first three months but continuing in first ten years. High incidence of hip fracture and dementia in the worldwide include Europe and Middle East part of Europe, South America, Canada, United States and Asia. There is a very high probability that patients with hip fractures and dementia to develop delirium that will result a longer hospitalizations and poor mobility (Beaupre et al., 2006; Cummings et al., 1995; Lyons, 1997; Ory et al., 1999). Death is not a common complication of hip arthroplasty, under 1% patients in United States died, but in the first 90 days postoperative mortality it is a little bit higher than 1%. In otherwise after revision surgery the percent is higher.

A study shows that the most common postoperative complications are: dislocation, infection (the most common are Gram-positive *Staphylococcus aureus*- MRSA and Gram-negative bacillus), nerve injury, cognitive and neurological alterations approximately 20% of patients are affected, cardiopulmonary diseases, venous thrombosis, gastrointestinal bleeding, urinary tract complications, intraoperative anemia, hydro electrolytic disorders and pressure scars.

In patients over 65, cognitive impairment occurs in 10% of cases and most of them have difficulty concentrating, writing, reading, but essential daily activities can do. The problem of these disorders is unknown, but it is assumed that the neurotoxic effect of anesthesia may be a contributory factor. The appearance of delirium is a normal symptom in nearly a third of patients, becoming hyperactive or hypoactive (age-related, alcohol-consuming, pre-operative drugs such as benzodiazepine) (Ciubara et al., 2018). It has been reported that spinal anesthesia probably reduces the risk of delirium after surgical surgery, as well as the administration of oxygen to a saturation greater than 95%. It has also been found that analgesics reduce the risk of delirium while antipsychotics and sedatives do not give the desired response (Sirbu et al., 2017).

In terms of lung problems in patients over 70 years of age with hip fractures, there is an exacerbation of chronic lung, atelectasis, difficulty breathing, pneumonia, pulmonary thromboembolism.

The most common gastrointestinal problems are dyspepsia, abdominal distension and constipation. Postoperatively, stress ulcer may also appear as a complication of surgeon surgery that can be prevented with antacids and proton pump inhibitors. A common problem with surgical patients is the inability to eliminate urine that can complicate infection and serious kidney problems. The urine sample should be suppressed the next day postoperatively. The most common infections of the urinary tract are the nosocomial cause. These may cause the delirium and may prolong the duration of admission and may contribute to death (Dearborn & Harris, 1998, Dunsmuir et al., 1996, Paavolainen et al., 2002; Sandu, 2013; Sandu et al., 2017; Skinner & Schulz, 2002).

The American Heart Association suggests that there are less than 5% of patients with hip fractures who experience postoperative cardiac complications, but the mortality rate rises in the first year to 20%. The most common causes of mortality are myocardial infarction and deep vein thrombosis. Prophylaxis of low-molecular-weight heparin deep vein thrombosis reduces its appearance by 60% because it causes vasodilation and maintains blood flow to the extremities, also inhibiting platelet formation and adherence to the endothelium.

Intraoperative is the occurrence of anemia at 24-44%. Explanatory work because preoperator can lose about 500 ml of blood and can form a hematoma that can be evacuated during surgery. Anemia can also be affected by age, heart and lung problems, fracture type and anesthesia. Hemoglobin values below 10 <g / dL is an important factor in mortality.

From an endocrine point of view malnutrition occurs between 20-70% in patients with hip fractures, hospitalized. It affects many organs and systems, which is what causes sarcopenia and mental, cardiac and immune problems. Also, in these patients, pressure scars and the occurrence of infections are much more common. Decompensated type II diabetes is associated with an increase in the number of perioperative infections and the occurrence of coronary problems. Pressure scars occur due to the accumulation of force of extrinsic and intrinsic factors, and the most common areas are in the lumbo-sacrata region. In 35% of cases there is a decubitus ulcer in the first week of hospitalization. Also influenced by age, malnutrition, nutrition, bed type (Jang et al., 2011; Park et al., 2014; Vendemmia et al., 2019). Depending on the type of surgeon's preferred type of surgeon, the following nerves may be injured: femoral nerve, sciatic nerve, and superior gluteal nerves (Hurd et al., 2006).

To prevent loosening of the aseptic implant, the shape and materials of the prostheses have long been studied. The porous surfaces, the use of cement and the organic coating of the prosthesis components make a perfect integration of the implant. Hydroxyapatite has the role of permanently fixing the implant in the bone and determines the creation of a biological link between the implant and the bone. The combination of the porous surface of the cup with the hydroxyapatite conductivity determines bone growth between the acetabular cavity and cup also ingrowth between femoral component and femoral bone (Hannouche et al.,

2003; Park et al., 2006).

METHODS AND RESULTS

A one-year retrospective study included 150 elderly patients, women and men with the same pathology as femoral neck fracture. All patients presented to the emergency room with hip fractures, osteoporosis and dementia. In the first 24 hours of hospital prophylaxis of venous thromboembolism with low molecular weight heparin was administered and it continued for 35 days postoperatively. Patients return to control at 2.4 weeks and 2.6.12 months respectively.

From 150 patients, 82 are males and 68 are females and the mean age is 71.4 years. In terms of Garden classification, 139 patients have Garden IV fractures and 11 patients have Garden III fractures. It is found that women have more frequent comorbidities. It is also found that intraoperatively the most common complication is the loss of excessive amounts of blood and many patients need blood transfusions. Intraoperative mortality is not met. The rate of mortality in the first year of this patient is under 10%.

The most common complications with a rate of occurrence in 23% of cases are: infections, dislocations, pulmonary embolism, vicious ossification and death. Compared with the literature, where a mortality rate of 25% is specified in the first year, in this study mortality rate was 11%.

Other study was conducted on 184 patients, of which 46 men and 136 women who used this type of prosthesis were then clinically and radiologically assessed at 1.3.6, 1 year and after. From a clinical point of view, the Harris hip score has been made: the level (pain, function, appearance of the deformities), daily activities (climbing stairs, ability to clothe and stretch, distance traveled) while the WOMAC test is used also for measuring the pain level, the ability to perform regular movements, but also to evaluate mental functions. In 85% of patients studied with the Harris Hip Score grid, the feedback is good or very good.

CONCLUSIONS

The most encountered complications after hip arthroplasty are: death, dislocation and infection. Monopolar Austin Moore and bipolar hemiarthroplasty has a beneficial effect on the patient by reintegration into everyday life, the ability to move and increases life expectancy.

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