

# Integrative Therapy In Patients With Myeloma Disease

Karimov Murodullo Yuldashevich\*, Kayumov Abdurakhman Abdumavlyanovich\*\*, Saidov Sokhib Saidmurodovich\*\*\*, Achilova Ozoda Umarkulovna\*\*, Makhamadaliyeva Gulchekhra Zukhriddinovna\*\*

\*Department of Traumatology and Orthopedics, Tashkent Medical Academy

\*\*Scientific Research Institute of Hematology and Blood Transfusion, Tashkent

\*\*\*Scientific Center of Neurosurgery, Tashkent

**Abstract. Purpose of the research.** To assess the quality of life of patients undergoing inpatient treatment with skeletal bone lesions. To assess the quality of life of patients on conservative and surgical therapy of osteoskeletal lesions. **Materials and methods.** The study was carried out in the department of stem cell therapy at the Research Institute of Hematology and Blood Transfusion of the Republic of Uzbekistan. The subject of the study was the medical and social health of patients with bone complications of myeloma. A total of 15 patients participated in the study. They made up 2 groups - 7 patients in the first and 8 in the second. All patients were questioned using the WHOQOL-100 questionnaire according to the validated Russian version of the WHOQOL-100. **Results:** According to the results of the questionnaire, the quality of life of patients was assessed by points in four domains: physical health (FZ), physiological health, social relationships (SR), level of independence (ID). The following formula was used to recalculate the values. As for physical health, it was assessed in both groups as completely unsatisfactory (17 and 23 p <0.05). The patients were always worried about pain. Family and personal conflicts arose against the background of constant pain. In addition, there was a need for additional financial costs: for sick leave to care for a relative or hiring additional personnel. Further, the data differ greatly among the groups. **Conclusion.** When comparing the results of the study of the quality of life of groups A and B before the start of treatment and in dynamics, it was noted that if surgical treatment of pathological fractures is carried out, preventing prolonged compression and immobilization, the patient's quality of life will improve. The number of complications will decrease, and in some cases even prevent deaths.

**Index Terms-** hemoblastosis, therapy, osteoskeletal lesions, osteosynthesis, myeloma disease.

## I. INTRODUCTION

The standard tactics for treating patients with malignant blood diseases include polychemotherapy followed by complex treatment. One of the important prognostically favorable factors in patients with hemoblastosis is the normalization of bone marrow parameters after induction courses of chemotherapy. Multiple myeloma - related to hemoblastosis, nevertheless has its own characteristics [1, 2, 9, 11]. The disease develops more often in people over 45 years old. The substrate of the disease is the mutated plasma cells of the bone marrow, the waste product of which,

paraprotein, affects primarily the bones of the skeleton. Based on this feature, patients suffering from this disease in the first place lose the ability to self-care. Bone pain, pathological fractures, neurological disorders, bone marrow compression, hypercalcemia — that is, the main manifestations of bone damage occur in 89% of cases [1, 6, 10]. The advancement of modern pharmaceuticals and medicine has made it possible to increase the 5-year survival rate, but the question of the quality of life remains open. The World Health Organization Quality of Life Assessment (WHOQOL) project was established in 1991. Its goal was to develop an international methodology for assessing the quality of life, comparable in different cultures. This methodology assesses the feelings of individuals in the context of their culture and value systems, as well as their personal goals, standards and interests. The WHOQOL methodologies have been developed jointly by a number of centers around the world and have been extensively tested in the field [2, 7, 8].

Perhaps the first attempt at a medical interpretation of this phenomenon was the work of the professor of Columbia University in the USA D.A. Karnovsky, who in 1947 published the article "Clinical evaluation of chemotherapy in cancer" [3, 4].

In the 21<sup>st</sup> century, many European states emphasize the importance of the orientation of socio-economic policy towards improving the quality of life of the population. In 2004, the President of Russia for the first time defined the quality of life as a target criterion for the socio-economic development of Russia [4]. In Uzbekistan, 2015 has been declared the "Year of attention and care for the older generation", in which many medical projects continue to be implemented aimed at improving the quality of life of patients. Today, it is the well-being of a person, bringing the life of patients closer to the level of practically healthy people is one of the main goals of treatment. Cancer science is no exception in this regard. The question of not only "how long did the patient live", but also "how did he live" these years" is increasingly taking place in scientific publications of recent years [3, 5].

## II. PURPOSE OF THE RESEARCH

To assess the quality of life of patients undergoing inpatient treatment with skeletal bone lesions. To assess the quality of life of patients on conservative and surgical therapy of osteoskeletal lesions.

## III. MATERIALS AND METHODS

The study was carried out in the department of stem cell therapy at the Research Institute of Hematology and Blood Transfusion of the Republic of Uzbekistan. The subject of the

study was the medical and social health of patients with bone complications of myeloma. A total of 15 patients participated in the study. They made up 2 groups - 7 patients in the first and 8 in the second. All patients were questioned using the WHOQOL-100 questionnaire according to the validated Russian version of the WHOQOL-100. The questionnaire was completed by patients before surgery in the first group, and in the second group at the time of the onset of a bone complication (pathological fracture, pain, diagnosed plasmacytoma or plegia of the extremities as a result of spinal cord compression) after 6 months and a year. The article presents the results of observation from 6 to 13 months. In the future, a questionnaire is planned every 6 months of life, regardless of the course of the underlying disease.

After mathematical processing of the patients' answers, the result is obtained in the form of the number of points on certain scales. The received indicators on functional and symptomatic scales and individual questions vary from 0 to 100 points. A higher scale score represents a higher response rate. Thus, a high score on a functional scale represents a high / healthy level of functioning, but a high score on a symptomatic scale represents a high level of symptomatology / problem.

In the first group (I) of patients, for medical reasons, surgical treatment was carried out depending on the location of fractures and tumors. The operations were carried out at the Republican Scientific Center of Neurosurgery in Tashkent, MaxHealthCare hospital, department of spinal surgery in Delhi and at the department of traumatology and orthopedics of the clinic of the Tashkent Medical Academy. For osteosynthesis, plates, screws, diameters from ChM (Poland) were used. The diameters of screws for osteosynthesis of long tubular bones of the extremities d310, d380, plates - 9D, 9C. The fixation of the vertebrae was carried out with screws d35, d40, 40-60 mm long.

Two patients with pathological hip fractures underwent intramedullary osteosynthesis (Fig. 1). One patient underwent laminectomy and fixation of the cervical vertebrae in Delhi (Fig. 3), after which, based on the results of histological analysis, myeloma was diagnosed and the patient received courses of therapy and was followed up with us. The rest of the patients had pathological vertebral fractures at different levels. In 3 patients, the vertebrae were stabilized with bone cement (Fig. 4) in a neurosurgery center, and one patient underwent decompression laminectomy with removal of an extramedullary tumor with stabilization of the TPF system.

Another group of patients (II) refused surgical treatment and was treated conservatively. Local irradiation was applied to the site of a pathological fracture or plasmacytoma at a dose of 1.5 Gy for 7-10 days at an average therapeutic dose of 10-15 Gy. radiation therapy was carried out in the city oncological dispensary in Tashkent. Polychemotherapy with targeted drugs and analgesic therapy were carried out simultaneously.

Each patient in both groups received a course of zoledronic acid preparations to prevent the osteoresorbent syndrome.

#### IV. RESULTS AND DISCUSSION

According to the results of the questionnaire, the quality of life of patients was assessed by points in four domains: physical health (PH), physiological health, social relationships

(SR), level of independence (LI). The following formula was used to recalculate the values:

$$A = \frac{\text{initial value} - \text{minimum value}}{\text{maximum possible range}} * 100$$

The initial value of the quality of life of patients in both groups showed low social adaptation and the level of independence (50 and 41.7;  $p < 0.01$ ).

Patients, regardless of the group, needed outside care. This brought psychological discomfort, the patients were emotionally unstable. As for physical health, it was assessed in both groups as completely unsatisfactory (17 and 23  $p < 0.05$ ). The patients were always worried about pain. Family and personal conflicts arose against the background of constant pain. In addition, there was a need for additional financial costs: for sick leave to care for a relative or hiring additional personnel. Further, the data differ greatly among the groups. In the group of patients (A) who underwent surgical therapy, the indicators of physical health, social relationships and the level of independence (95  $p < 0.01$ ) improved dramatically (Fig. 1). In these patients, the postoperative rehabilitation period lasted from 3 to 6 weeks. After this period expired, all 7 patients could move independently, take care of themselves, and do routine household chores. One patient even returned to his professional activities.

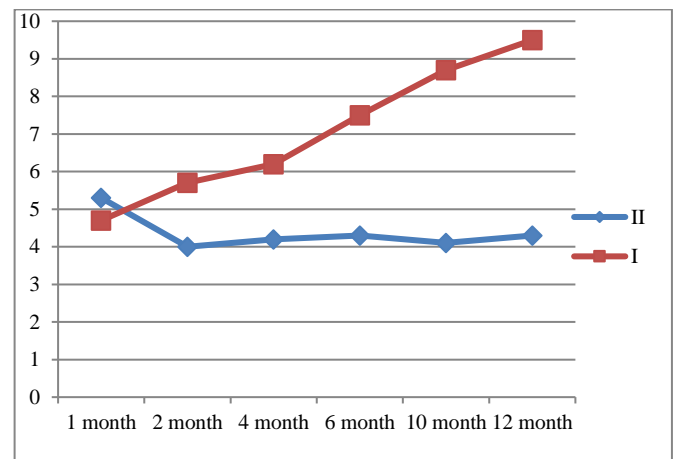
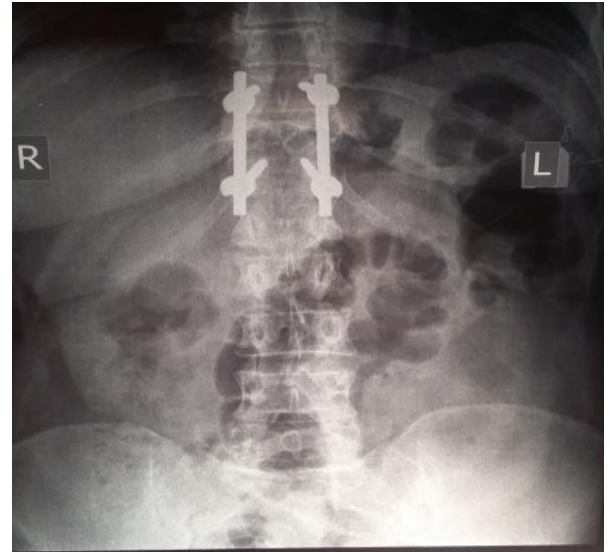
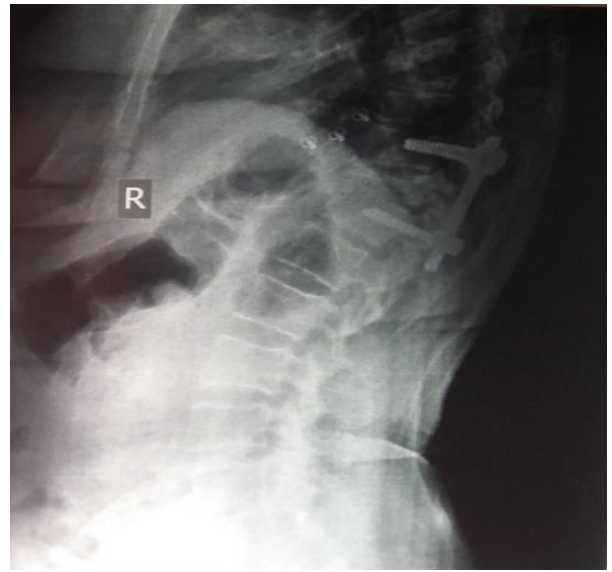


Diagram 1. Changes in social relationships in patients of groups I and II.

Two have intramedullary osteosynthesis of the hip (Fig. 1). The operation was performed in one case during induction therapy. The high risk of thrombosis was due to the high total protein content of up to 140 g / L, the amount of pathological IgG  $\kappa$  up to 10.8 g / L. Preoperative preparation included a course of plasmapheresis and enoxaparin sodium (Clexane) at a dose of 0.01 mg / kg of the patient's weight.



**Fig 1. Intramedullary hip osteosynthesis**



**Figure: 2. Transpedicular fixation of the vertebrae with resection of the extramedullary tumor**

In the second case, a pathological hip fracture occurred during a relapse of the disease. There was also a high risk of thrombosis and disseminated intravascular coagulation syndrome. In both cases, the operation was successful. Limb function was fully restored 5 weeks after surgery. Then the patients continued the courses of polychemotherapy.

At the time of the study, they are in partial remission. One patient was admitted with anemic syndrome, paraplegia of the lower extremities and dysfunction of the pelvic organs. MRI of the thoracic spine: pronounced osteoporosis, extramedullary Th6 tumor, with spinal cord compression. Induction chemotherapy led to an improvement in blood and bone marrow parameters. But it was not possible to restore the function of the limbs. This patient underwent decompression laminectomy (Fig. 2).

The postoperative period was satisfactory. The functions of the pelvic organs and limbs were fully restored after 6 weeks. The patient completed polychemotherapy courses, underwent autologous bone marrow transplantation and is in remission at the time of the study. Repeated questioning showed a significant improvement in the quality of life. Physical health and the level of independence were assessed as very good (FZ-97, UN-88,  $p < 0.01$ ). Social relationships were stable (SV-92,  $p < 0.02$ ). The patients became mentally stable, cheerful.

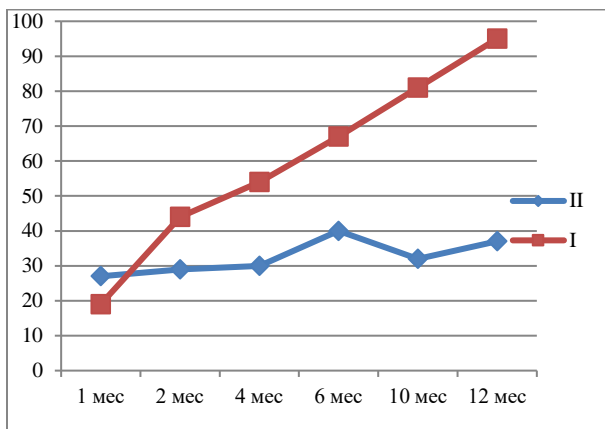


Diagram 2. Changes in physical health in patients of groups I and II.

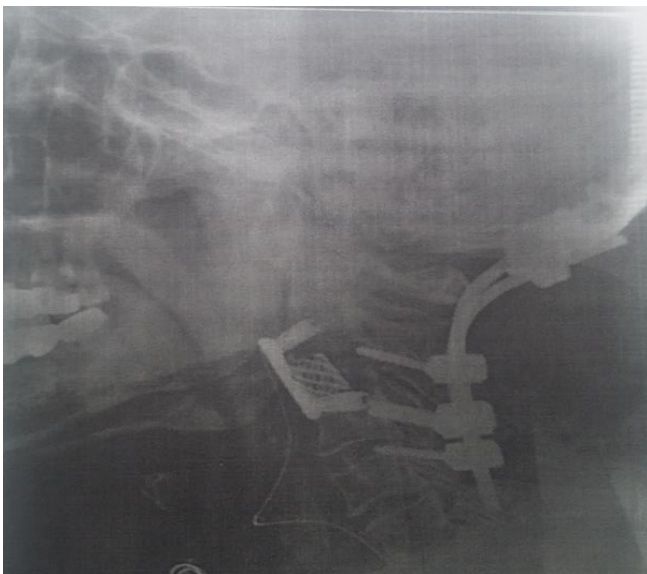


Figure 3. Transpedicular fixation with tumor resection in the cervical spine.

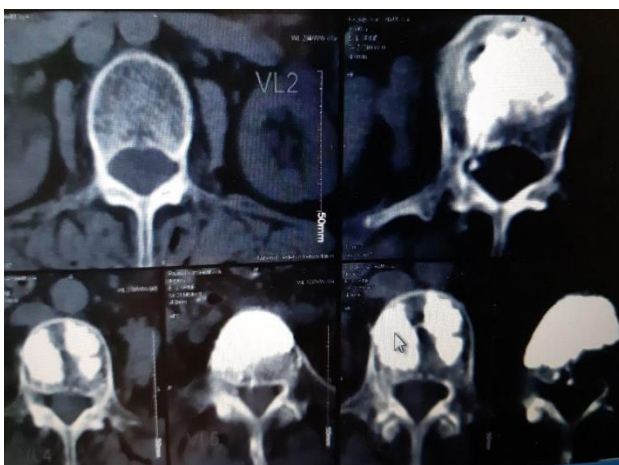


Figure 4. Vertebroplasty with medical cement VL2.

In the group of conservative therapy, the data of the same indicators even slightly worsened. Prolonged immobilization, plaster casts, and forced bed rest led to infectious complications. In addition, in one case, venous thrombosis of the lower extremities developed, in 2 cases

pressure sores complicated by soft tissue infection, in 2 patients - atony of the bladder and intestines, which eventually led to sepsis with a fatal outcome. From the 2nd group of patients, 3 cases of mortality. Radiation therapy, which provides temporary relief and pain relief, becomes impossible over time due to neutropenia. In one patient, a fracture in / 3 of the shoulder was accompanied by constant pain; a plaster cast was not applied due to severe osteoporosis. Soft immobilization does not provide a reliable fixation and bone fragments are constantly displaced. As a result, the bone does not heal. The patient has lost the ability to care for himself. Repeated questionnaires showed a clear decline in physical and physiological health, social relationships and the level of independence (PH-35, UN-52, SV 43  $p < 0.05$ ). Patients in this group suffer from depressive syndrome and are emotionally labile. Often they need inpatient treatment for concomitant diseases and complications.

## V. CONCLUSION

When comparing the results of the study of the quality of life of groups A and B before the start of treatment and in dynamics, it was noted that if surgical treatment of pathological fractures is carried out, preventing prolonged compression and immobilization, the patient's quality of life will improve. The number of complications will decrease, and in some cases even prevent deaths.

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## AUTHORS

1. *Karimov Murodullo Yuldashevich* – MD, Professor in the Department of Traumatology and Orthopedics, Tashkent Medical Academy, Farobiy street-2, Tashkent city, Uzbekistan.  
E-mail: [murodullo.karimov@yahoo.com](mailto:murodullo.karimov@yahoo.com)
2. *Kayumov Abdurakhman Abdumavlyanovich* – MD. Director of the Scientific Research Institute of Hematology and Blood Transfusion, 42 A, Chilanzar-6 Block, Chilanzar district, Tashkent, Uzbekistan, 100185.
3. *Saidov Sokhib Saidmurodovich*- Neurosurgeon doctor of the Scientific Center of Neurosurgery. 100052. Darkhontepa 5A, M. Ulugbek district, Tashkent. Uzbekistan
4. *Achilova Ozoda Umarkulovna* - doctor hematologist of the Scientific Research Institute of Hematology and

Blood Transfusion, 42 A, Chilanzar-6 Block, Chilanzar district, Tashkent, Uzbekistan, 100185. E-mail: [sachilova@yahoo.com](mailto:sachilova@yahoo.com)

5. *Makhamadaliyeva Gulchekhra Zukhriddinovna* – Ph.D Doctor of the Scientific Research Institute of Hematology and Blood Transfusion, 42 A, Chilanzar-6 Block, Chilanzar district, Tashkent, Uzbekistan, 100185. E-mail: [Kuzieva79@mail.ru](mailto:Kuzieva79@mail.ru)

**Correspondence Author** – *Karimov Murodullo Yuldashevich*. MD, Professor in the Department of Traumatology and Orthopedics, Tashkent Medical Academy, Farobiy street-2, Tashkent city, Uzbekistan.  
E-mail: [murodullo.karimov@yahoo.com](mailto:murodullo.karimov@yahoo.com)