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Quality Of Life Assessment In Patients With Myelodysplastic Syndrome

Yunusova Zulkhumor Jumaboevna

Republican Specialized Scientific and Practical Medical Center of Hematology, Tashkent, Uzbekistan

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Abstract: Objective: To evaluate health-related quality of life (HRQoL) in patients with myelodysplastic syndrome (MDS).

Methods: A total of 234 patients with MDS, aged 18–72 years and originating from different regions of the republic, were enrolled between 2018 and 2025 during hospitalization at the 2nd Hematology Department of the Republican Specialized Scientific and Practical Medical Center of Hematology. Clinical examination, laboratory investigations, and assessment of HRQoL using the Short Form-36 (SF-36) questionnaire were performed. Data were analyzed using appropriate statistical methods.

Results: Analysis of SF-36 scores revealed a marked reduction in both the physical and mental health components among patients with MDS.

Conclusion: Patients with MDS experience substantially impaired quality of life, reflected in significant limitations across both physical and psychological domains.

Keywords: Myelodysplastic syndrome, health-related quality of life, SF-36 questionnaire, physical component, mental component.

Introduction: Myelodysplastic syndromes (MDS) represent a phenotypically and genotypically heterogeneous group of myeloid malignancies, characterized by ineffective hematopoiesis and an increased risk of transformation into acute myeloid leukemia (AML) [2,9]. Clinically, MDS is defined by persistent cytopenia, manifesting as anemic, hemorrhagic, and infectious syndromes [1,10]. Accurate risk stratification and assessment of progression to AML are essential for optimal management and treatment decision-making in patients with MDS [6].

The primary therapeutic goal in MDS is to improve patients' quality of life (QoL) [3,8]. To achieve this objective, systematic evaluation of QoL—both prior to and following treatment—is required.

Modern instruments for assessing QoL in oncohematology encompass physical, psychological, and social health domains, taking into account the burden of disease and the effects of therapy [4]. QoL assessment is particularly important in MDS, as it enables timely identification of potential complications related to both the disease and treatment, thereby playing a key role in delivering patient-centered care [5,7].

Objective: To evaluate health-related quality of life in patients with MDS

Methods

The study included 234 patients with MDS, aged 18–72 years, from different regions of the republic, who were hospitalized in the 2nd Hematology Department of the Republican Specialized Scientific and Practical Medical Center of Hematology between 2018 and 2025. The diagnosis of MDS was established according to the World Health Organization (WHO) criteria (2008, 2017), based on clinical examination and laboratory investigations, including complete blood count, bone marrow aspiration (myelogram), cytogenetic analysis, and biochemical blood tests. Patients were stratified into three groups according to prognostic risk: low-risk (n=125), intermediate-risk (n=41), and high-risk (n=68). Statistical analysis was performed using «Statistic for Windows, 2019», employing standard statistical procedures.

Results and Discussion

Quality of life in patients with MDS was assessed using the internationally validated Short Form-36 (SF-36) questionnaire [https://studfile.net/preview/7828998/page:21], which evaluates two major domains: the Physical Component Summary (PCS) and the Mental Component Summary (MCS).

In the overall cohort of patients with MDS, both PCS and MCS scores were found to be below 50 points. The PCS ranged from 28.1 to 56.9, with a mean of 37.10, while the MCS ranged from 26.8 to 60.2, with a mean of 40.63. These low PCS (37.10) and MCS (40.63) values indicate a marked impairment in quality of life among patients with MDS.

When individual domains of the SF-36 were analyzed, considerable variability was observed within both physical and mental health components. Within the PCS, the lowest score was recorded in physical functioning (PF), with a mean of 28.42 (range: 12.5–90.0). In contrast, the highest score was observed in role physical functioning (RP), averaging 65.93 (range: 0.0–100.0) (Figure 1).

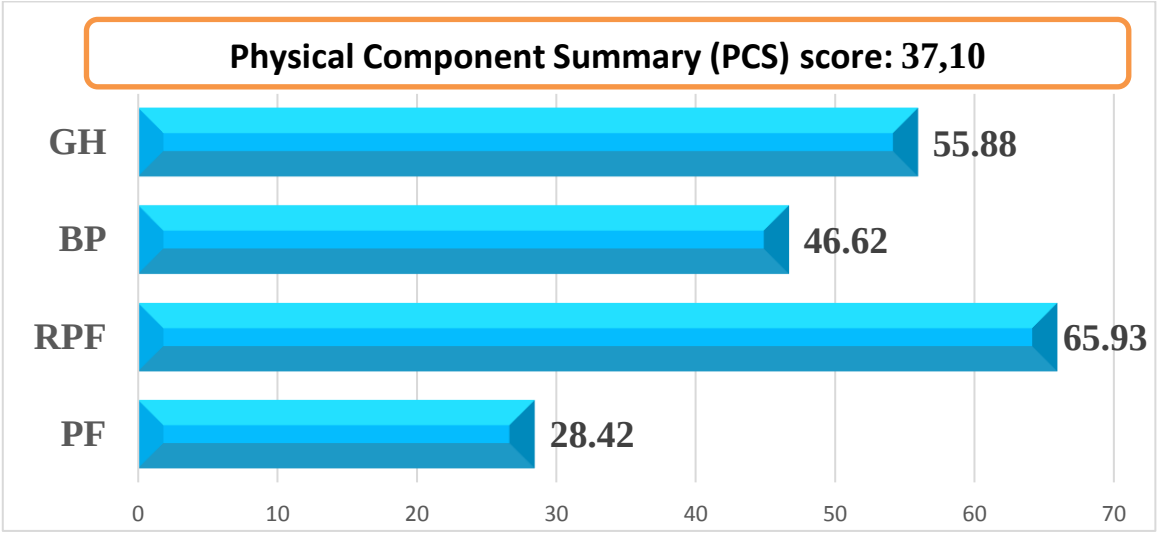

Figure 1. Physical Component Summary (PCS) scores in patients with myelodysplastic syndrome (MDS) assessed by the SF-36 questionnaire.

Within the Mental Component Summary (MCS), the lowest score was observed in Role Emotional (RE), with a median value of 33.95 (range: 0.0–100.0). In contrast, the highest score was recorded in Social Functioning (SF), with a median of 67.75 (range: 0.0–100.0) (Figure 2).

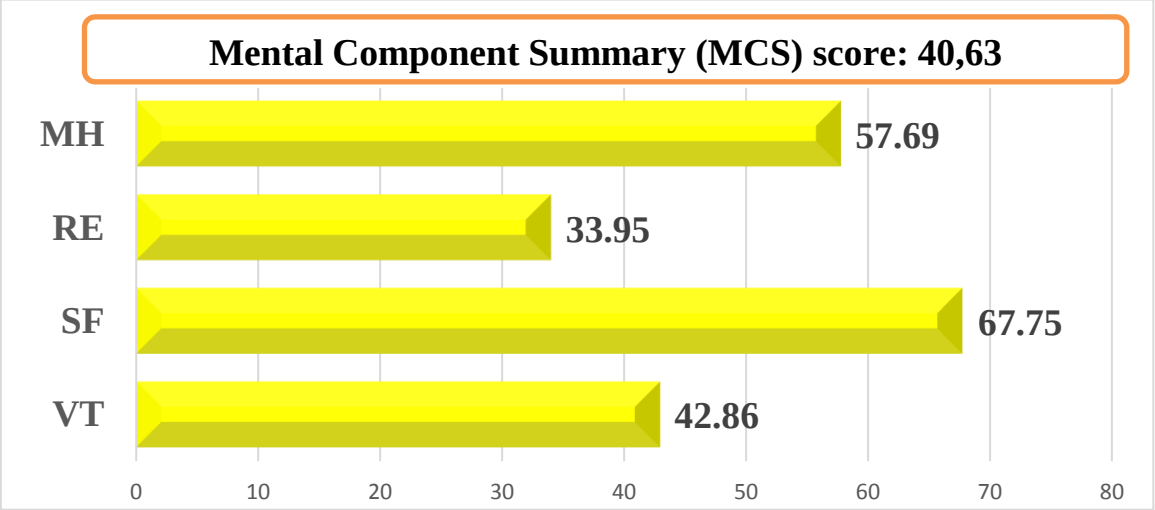

Figure 2. Mental Component Summary (MCS) scores in patients with myelodysplastic syndrome (MDS) assessed by the SF-36 questionnaire.

According to the distribution of quality-of-life levels, the majority of patients with MDS demonstrated poor or relatively poor outcomes. Specifically, 98.3% (n=230) of patients had impaired physical health, while 88.0% (n=206) showed poor or relatively poor mental health. These impairments were primarily reflected in reduced physical functioning (60.2%, n=141), increased bodily pain (73.5%, n=172), decreased vitality (75.2%, n=176), and diminished role emotional functioning (80.8%, n=189).

When quality-of-life indicators were evaluated by gender, no statistically significant differences were observed between male and female patients. Within the PCS, mean Physical Functioning (PF) scores were 33.49 in men and 31.92 in women; Role Physical (RP) scores were 64.25 and 67.82, respectively; Bodily Pain (BP) scores were 45.31 and 48.33; and General Health (GH) scores were 55.81 and 55.75.

Within the MCS, mean Vitality (VT) scores were 41.87 in men and 42.92 in women; Social Functioning (SF) scores were 66.79 and 68.07; Role Emotional (RE) scores were 35.49 and 35.31; and Mental Health (MH) scores were 56.36 and 57.86, respectively.

Overall, analysis of SF-36 subscales by gender confirmed the absence of statistically significant differences in either PCS ($p>0.05$) or MCS ($p>0.05$). The lowest scores were observed in Physical Functioning (PF) and Role Emotional (RE), with median values of 33.49 and 31.92 for men and women in PF, and 35.49 and 35.31 for men and women in RE ($p>0.05$). By contrast, the highest scores were recorded for Role Physical (RP) and Social Functioning (SF), with median values of 64.25 and 67.82 for men and women in RP, and 66.79 and 68.07 for men and women in SF, respectively ($p>0.05$).

No significant differences in quality-of-life indicators were identified between patients younger and older than 60 years. In both age groups, the lowest scores were observed in Physical Functioning (PF) (31.4 and 34.1; $p=0.166$) and Role Emotional (RE) (33.0 and 37.6; $p=0.072$), while the highest scores were recorded in Role Physical (RP) (66.4 and 65.3; $p=0.820$) and Social Functioning (SF) (67.8 and 66.9; $p=0.528$), respectively.

Among patients under 60 years of age (n=151), the mean Physical Component Summary (PCS) score was 37.0 in men (n=81) and 37.7 in women (n=70) ($p=0.544$), while the mean Mental Component Summary (MCS) scores were 42.0 and 42.2, respectively ($p=0.661$).

In patients aged 60 years and older (n=83), the median PCS scores were 37.8 in men (n=50) and 37.7 in women (n=33) ($p=0.544$), while the corresponding MCS scores were 42.0 and 42.7, respectively ($p=0.661$).

Thus, in both male and female patients, quality-of-life scores declined with age; however, the absolute values differed only minimally between groups. When stratified by age (<60 years, 60–75 years, and >75 years), QoL measures consistently demonstrated reductions in both PCS and MCS domains. Nevertheless, no statistically significant differences were identified across age subgroups according to SF-36 scores, indicating a relatively uniform decline in quality of life.

Similarly, QoL measures in male and female patients with MDS across different age categories were comparable and showed no statistically significant differences.

In summary, analysis of SF-36 results demonstrated markedly reduced quality of life in patients with MDS across all age and gender groups. The absence of statistically significant differences between these groups suggests a uniform decline in QoL, irrespective of demographic characteristics.

We further analyzed quality of life in patients with MDS according to prognostic risk groups. Overall, both PCS and MCS scores were reduced across all categories. Median PCS and MCS scores were 37.76 and 42.28 in the low-risk group, 37.49 and 41.97 in the intermediate-risk group, and 36.87 and 42.47 in the high-risk group, respectively.

Thus, quality of life in patients with MDS was uniformly impaired regardless of prognostic risk, primarily due to reduced Physical Functioning (PF: 34.65; 32.0; and 29.29; $p>0.05$) and Role Emotional (RE: 34.81; 35.09; and 37.25; $p>0.05$).

Significant differences between low- and high-risk groups were observed only in PF (34.7 vs. 29.3; $p=0.034$) and Bodily Pain (BP: 48.1 vs. 42.8; $p=0.013$). Differences in other PCS and MCS domains did not reach statistical significance ($p>0.05$).

When stratified by sex, QoL measures in the low- and intermediate-risk groups showed no statistically significant differences. However, in the high-risk group, a significant difference was observed in PCS ($p=0.016$), with higher scores among women. At the same time, MCS scores showed a non-significant trend toward greater impairment in women compared to men ($p=0.147$).

In the low-risk group, patients aged ≥60 years tended to have higher PCS values ($p=0.172$) and significantly higher RE scores (39.6 vs. 30.2; $p=0.023$) compared with patients younger than 60 years. Conversely, Mental Health (MH) was somewhat higher among patients <60 years compared to those ≥60 years (59.4 vs. 56.1), showing a clear trend toward significance ($p=0.053$).

In the intermediate-risk group, patients aged ≥60 years demonstrated significantly higher scores in Physical Functioning (PF; $p=0.013$), Vitality (VT; $p=0.012$), and overall Mental Component Summary (MCS) compared with patients younger than 60 years. Conversely, Role Physical (RP) scores were significantly higher among patients <60 years ($p=0.034$).

In the high-risk group, no statistically significant differences were identified between the two age categories, as both physical and mental health scores were comparably low.

Conclusion

Analysis of SF-36 data demonstrated significantly reduced quality of life in patients with MDS, affecting both physical and mental health components. The impairment was observed across prognostic risk categories, age groups, and sexes, with only minor variations that did not substantially alter the overall trend. These findings highlight the profound impact of MDS on patient well-being and underscore the importance of incorporating quality-of-life measures into clinical assessment and management.

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