

**Impact of Geriatric Assessment Using the G8 Score on
Treatment Choice in Elderly Patients With Colorectal
Cancer: Experience of the Medical Oncology Department,
Avicenne Military Hospital Marrakech**

Moussa Abdoul Aziz Sawadogo

Mohamed Kaakoua

Medical Oncology Department, Ibn Sina Military Hospital,
Faculty of Medicine, Cadi Ayyad University, Marrakech, Morocco

Abdoul Malick Tawfik Sore

Visceral Surgery Department, Ibn Sina Military Hospital,
Faculty of Medicine, Cadi Ayyad University, Marrakech, Morocco

Hamza Laabbar

Medical Oncology Department, Ibn Sina Military Hospital,
Faculty of Medicine, Cadi Ayyad University, Marrakech, Morocco

Yacine Laouali Abdou

Visceral Surgery Department, Ibn Sina Military Hospital,
Faculty of Medicine, Cadi Ayyad University, Marrakech, Morocco

Abdoulkadri Guilley Illiassou

Baztami Youssef

Soukayna Boujmadi

Medical Oncology Department, Ibn Sina Military Hospital,
Faculty of Medicine, Cadi Ayyad University, Marrakech, Morocco

Mohammed Lahkim

Visceral Surgery Department, Ibn Sina Military Hospital,
Faculty of Medicine, Cadi Ayyad University, Marrakech, Morocco

Ismail Essadi

Medical Oncology Department, Ibn Sina Military Hospital,
Faculty of Medicine, Cadi Ayyad University, Marrakech, Morocco

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Abstract

Introduction: Colorectal cancer mostly affects older people. The geriatric assessment tool was developed to identify elderly cancer patients suitable for standard treatment and to guide the optimal treatment plan. **Materials and methods:** A retrospective pilot study was conducted in the medical oncology department. We included patients over 65 years of age being treated for colorectal cancer. **Results:** We identified 88 patients over 65 years of age. 48 patients had localized disease (54.5%) and 40 patients had metastatic disease (45.5%). For patients with localized disease chemotherapy was indicated in 25 patients (52%). Among this group, 17 patients (68%) had a G8 score greater than 14. For patients with a G8 score less than or equal to 14 ($n = 8$), 5 patients (62.50%) benefited from a dose reduction after poor tolerance to standard doses. In this population of localized disease patients, the G8 score showed very high sensitivity (62.5%) and high specificity (82.35%). Among the metastatic patients, 16 had a G8 score less than or equal to 14 representing 40% of the metastatic patients. In the population with a G8 score above 14, 5 patients (20.83%) subsequently required dose adjustments, compared. In this population of metastatic patients, the G8 showed sensitivity (64.28%) and specificity (73.07%). **Conclusion:** Several limitations must be highlighted regarding the use of G8 score in colorectal cancer. First, the majority of published studies are observational, with limited sample sizes and heterogeneous conclusions. Second, there is still no randomized controlled trial formally demonstrating that a G8-guided therapeutic strategy improves overall survival or quality of life compared to standard care.

Keywords: Colorectal cancer, geriatrics, chemotherapy, Morocco, G8 score

Introduction

Colorectal cancer is one of the most common malignant tumors, ranking third in frequency and second in mortality. The median age of onset for colorectal cancer is around 70 years (Stewart B & Wild CP, 2014). The difficulty of managing cancer in elderly patients lies in their frailty, which means they have a low resistance to both the cancer itself and its various treatments (surgery, chemotherapy, radiotherapy...). To treat this group of people, the oncologist has to answer a multitude of questions: What type of patient is this? What are their comorbidities? Is it a patient experiencing good or poor aging? Are they fit to receive and tolerate an anticancer medical treatment? If they are a candidate for treatment, what is the optimal treatment for them, and if it's chemotherapy, at what dose should it be given? (M. Finlayson, 2005). Also The risk of cancer increases with age and

55% of new cancer cases are diagnosed in patients over 65 years. Although elderly patients are a heterogeneous population, they are often excluded from clinical trials due to restrictive inclusion criteria (Carine Bellera et al., 2013). Chronological age is not sufficient to characterize the heterogeneity of the elderly, and it is important to identify frail patients who need an adapted treatment plan. For this elderly population, a geriatric assessment is necessary, particularly using the G8 score, to determine the need for an oncogeriatric consultation (Phelip JM et al., 2019).

The geriatric assessment tool was developed to identify elderly cancer patients suitable for standard treatment and to guide the optimal treatment plan. It is within this context that the present study seemed important to us.

Materials & Methods

A retrospective pilot study was conducted in the medical oncology department at Avicenne Military Hospital in Marrakech. We identified patients over 65 years of age being treated for colorectal cancer. The study spanned five years, from January 2020 to December 2025. All included patients were assessed using the G8 score before starting specific treatment. Data was collected from the main documents available in the department. For each patient, the following details were recorded: name, sex, age, origin, medical, family, and surgical history, harmful habits, clinical presentation, tumor location, and disease stage.

The inclusion criteria were as follows:

- Be over 18 years old;
- Have colorectal cancer;
- Have a G8 score evaluation;
- Have a complete medical record.

The exclusion criteria were as follows:

- Incomplete record;
- Lost to follow-up, received less than half of the planned chemotherapy, or died before chemotherapy.

For statistical methods and tools, two multivariable logistic regression models were run to calculate the relative risks or Odds Ratios (OR) of G8 score and their 95% confidence intervals (CI). The G8 score was classified into two groups according to the result: high score group (score >14) and low score group (score ≤ 14). For each patient, data were collected from medical records using a standardized questionnaire.

Descriptive statistics were generated for all the questionnaires, including the G8 score. Sociodemographic or cancer-related characteristics

were compared among the participants, and statistical analyses were performed using JAMOV 2.7.33.

Results

Among 167 patients followed for colorectal cancer during this period, we identified 88 patients over 65 years old, which is 52.70% (n:88), with a mean age at diagnosis of 70 years [range 65-82 years]. We noted a male predominance (n=62) and a male-to-female ratio of 2.38. In the studied population we noted 51.14% patients (n: 45) followed for arterial hypertension, 32.95% patients (n: 29) for diabetes, 18.18% patients (n:16) who had undergone previous surgery and 14.77% others (n:13) for heart disease. (Table 1)

Table 1: Demographic data and patient history (n:88)

VARIABLE	NUMBER	PERCENTAGE
women	26	29.55%
men	62	70.45%
high blood pressure	45	51.14%
diabetes	29	32.95%
surgical history	16	18.18%
heart disease	13	14.77%
the average age	70 ans	

The most commonly observed histological type was mostly Lieberkühn adenocarcinoma. Before their evaluation, patients were categorized according to their disease stage: 54.55% patients with localized disease (n: 48) and 45.45% (n: 40) patients with metastatic disease (Figure 1).

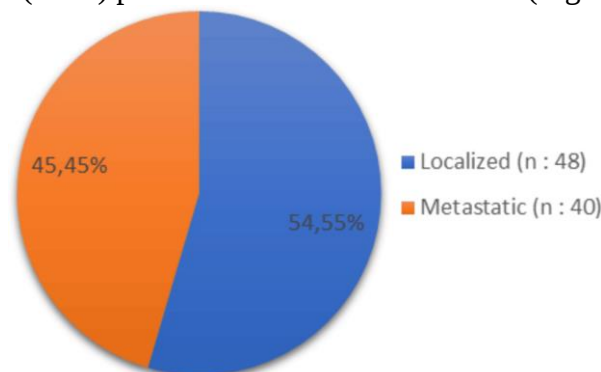


Figure 1: Distribution of patients by stage of the disease (n = 88)

Of the 48 patients (54.55%) with localized disease, 72.92 % were male (n:35) compared to 27.08% female (n:13). Twenty-three patients with stage I and II disease underwent surveillance as the therapeutic strategy, while the 52.08% (n:25) high-risk stage II and III patients received adjuvant chemotherapy.

Among the forty-eight localized patients, twenty-five will have the indication for chemotherapy according to the recommendations, that is 52.08% (n=25), distributed according to the G8 score. Eight patients had a G8 score of 14 or lower (n: 8), which is 32%, and 17 patients had a G8 score higher than 14 (n: 17), which is 68%. A dose reduction was required right away or after intolerance for 5 patients with a G8 score ≤ 14 (n: 5), or 62.5%, compared to 37.5% (n: 3) who received the standard dose. As for patients with a G8 score >14 , only 3 patients had a dose reduction, which is 17.65% of the cases (n: 3), compared to 82.35% (n: 14) who received the standard dose. (Table 2).

Table 2: Distribution of localized patients according to doses received and G8 score (n=25)

Patients with G8 score ≤ 14 (n : 8)		
	Number	Percentage
CONVENTIONAL DOSE	3	37.5%
REDUCED DOSE	5	62.5%
Patients with G8 score >14 (n : 17)		
	Number	Percentage
CONVENTIONAL DOSE	14	82.35%
REDUCED DOSE	3	17.65%

In this population of localized disease patients, the G8 score showed very high sensitivity (62.5%) with a confidence interval of [43,3% ; 77,7%] and high specificity (82.35%) with a confidence interval of [65,2%; 97,5%]. It was noted that in the population with a G8 score below 14, the most frequent complications were neutropenia, diarrhea, and anemia.

In our study population, forty patients had metastases, which is 45.45% (n: 40). Among this group, there were seven women, or 17.50% (n: 7), compared to 82.50% men (n: 33).. The most frequently observed secondary sites were liver metastases (26 cases, 65%), lung involvement (15 cases, 37.50 %), and bone metastases (15% ,6 patients). It should be noted that these metastatic sites could be combined. Among these patients, sixteen had a G8 score of 14 or less, which is 40% (n:16) of the metastatic patients, and 24 patients had a score higher than 14, which is 60% (n:24). Among the latter (G8 score >14), we found five patients who subsequently had a dose adjustment, that is 20.83% (n:5), compared to 79.17% (n:19) who received the conventional dose. For patients with a G8 score ≤ 14 , nine patients, or 56.25% (n:9), had a dose reduction, while seven patients, or 43.75% (n:7), received the conventional dose. (Table 3).

Table 3: Distribution of metastatic patients according to doses received and G8 score (n=40)

Patients with G8 score ≤ 14 (n : 16)		
	Number	Percentage
CONVENTIONAL DOSE	7	43.75%
REDUCED DOSE	9	56.25%
Patients with G8 score > 14 (n : 24)		
	Number	Percentage
CONVENTIONAL DOSE	19	79.17%
REDUCED DOSE	5	20.83%

In this population of metastatic patients, the G8 score showed sensitivity (64.28%) with a confidence interval of [50,7% ; 77,3%] and specificity (73.07%) with a confidence interval of [60,7%; 85,3%]. The side effects found were peripheral neuropathy in 32 patients (80%), followed by anemia in 70% patients (n:28), hand-foot syndrome in 35% patients (n: 14), neutropenia and diarrhea in 30% patients (n:12).

Discussion

The aging population is leading to an increase in the number of elderly cancer patients. In these patients, the heterogeneity of functional status and comorbidities makes standard clinical assessment insufficient to guide treatment decisions. The updated joint ESMO/SIOG guidelines emphasize the integration of systematic geriatric screening in all patients ≥ 70 years (or ≥ 65 years depending on the clinical context) before oncological treatment (Wildiers H, 2021; Martine Extermann et al., 2005; Van Cutsem & E Cervantes A, 2022). These guidelines specify that a high-sensitivity screening tool, such as the G8 score, should be used to identify patients requiring a comprehensive geriatric assessment before major surgery or intensive chemotherapy (Wildiers H, 2021; Martine Extermann et al., 2005; Van Cutsem & E Cervantes A, 2022). This data supports our observation regarding the need for thorough assessment in elderly individuals.

The G8 score is a rapid geriatric screening tool comprised of eight items that assess key areas of older adults' health, including nutritional status, mobility, independence, comorbidities, and subjective health status. A score ≤ 14 is conventionally used to signal vulnerability requiring a comprehensive geriatric assessment (CGA) (Martine Extermann et al., 2005; Van Cutsem E & Cervantes A, 2022; Bellera CA et al., 2012).

Several studies have confirmed that the G8 score is a reliable screening tool for identifying frail elderly cancer patients who require a comprehensive geriatric assessment (CGA) before any major treatment decision. In a prospective cohort of colorectal cancer patients aged ≥ 60 years, the G8 score demonstrated very high sensitivity (90.5%) and high specificity (90.3%) for reflecting frailty identified by a comprehensive

geriatric assessment, surpassing other tools such as the KG-7 in terms of diagnostic accuracy (Bellera CA et al., 2012; Decoster L et al., 2015; Soubeyran P et al., 2014). Our study found sensitivity of 62.5% for localized patients and 64.28% for metastatic patients, and specificity of 73.68% for localized patients and 72.07% for metastatic patients.

This high screening capacity means that the G8 score correctly identifies the majority of patients who then require a thorough geriatric assessment; this motivated its use in our study as in many other studies, especially with the use of the G8 score as a reference.

Several studies have investigated the relationship between the G8 score and treatment tolerance. They observed that elderly patients with a G8 score ≥ 14 had a significantly higher probability of completing planned chemotherapy than those with a low score (Kurokawa Y, 2023; Hara H, 2023). This was confirmed in our study, which found that in the localized and metastatic populations, respectively, 17.64% and 20.83% of patients with a G8 score ≥ 14 underwent chemotherapy dose reductions, compared to 62.50% and 56.25% in patients with a G8 score < 14 . In colorectal cancer, this dimension is particularly important because standard regimens (FOLFOX, FOLFIRI) involve neurotoxic and gastrointestinal toxicities that can rapidly impair the independence of frail patients. The G8 score thus appears to be a simple tool for anticipating the need for initial dose adjustments or enhanced monitoring.

Other studies have also reported an association between an altered G8 score and an increased risk of high-grade toxicities, unplanned hospitalizations, and treatment interruptions. For example, a G8 score ≤ 14 is associated with a higher incidence of febrile neutropenia, severe diarrhea, and unplanned hospitalizations (Mohile SG et al., 2018; Kenis C et al., 2024; Aparicio T et al., 2016). In our study, we noted that more than half of the population had a G8 score below 14, with the majority of adverse events being neuropathy, diarrhea, and bicytopenia (anemia and neutropenia).

In gastrointestinal cancers, and particularly colorectal cancer, data are less abundant but converge on the same conclusion: the G8 score helps identify vulnerable patients requiring either dose adjustment or a less intensive treatment strategy.

Furthermore, the universal threshold of 14, although widely used, may not be optimal in all populations or all tumor locations (Hamaker ME et al 2012). Our study encountered some limitations. Some patients were lost during follow-up or had passed away at the time of data collection, which limited the completeness of our dataset. Also, most of the published studies are observational, with small sample sizes and varied conclusions, which makes discussion and decision-making harder and supports the idea that the G8 score does not replace a full geriatric assessment.

Conclusions

Colorectal cancer is a condition that affects older adults more, and their care faces several challenges, especially due to their frailty. The G8 score helps guide treatment decisions but has its limits, as shown in our study. Therefore, decisions regarding the care of older adults with cancer should not be based solely on chronological age, as it doesn't really reflect their health status. In fact, older adults are very heterogeneous. The G8 score does not replace a comprehensive geriatric assessment.

Randomized trials dedicated to colorectal cancer in order to better define the role of the G8 score in future personalized therapeutic strategies for older patients.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

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