Scientific Foundation SPIROSKI, Skopje, Republic of Macedonia
Open Access Macedonian Journal of Medical Sciences. 2022 May 16; 10(B):1016-1019.
https://doi.org/10.3889/oamjms.2022.6404
eISSN: 1857-9655
Category: *B - Clinical Sciences*
Section: *Oncology*

A Single-Institute Cross-sectional Study of HCV-Positive Cancer Patients' Quality of Life in Egypt

Noha Hayek[1], Mona El Lawindi[2], Hanan Ali Sayed[1], Amal Sedrak[2], Zeinab M. Abd. El Hafeez[3], Amr Shafik Saad[3]*

[1]Department of Public Health and Community Medicine, Theodore Bilharz Research Institute, Giza, Egypt; [2]Department of Public Health and Community Medicine, Faculty of Medicine, Cairo University, Cairo, Egypt; [3]Department of Clinical Oncology, Ain Shams University, Cairo, Egypt

Edited by: Ksenija Bogoeva-Kostovska
Citation: Hayek NN, El Lawindi M, Sayed HA, Sedrak A, El Hafeez ZM, Saad AS. A Single-Institute Cross-Sectional study of HCV-Positive Cancer Patients' Quality of Life in Egypt. Open Access Maced J Med Sci. 2022 May 16; 10(B):1016-1019. https://doi.org/10.3889/oamjms.2022.6404
Keywords: Quality of life; Oncology; Viral hepatitis; European Organization for Treatment of Cancer Quality of Life Questionnaire -C30 v3
***Correspondence:** Amr Shafik Tawfik Saad, Faculty of Medicine Ain Shams University, Abbasseya Square, Cairo, Egypt. E-mail: docshak76@gmail.com
Received: 05-May-2021
Revised: 26-Jun-2021
Accepted: 06-May-2022

Funding: This research did not receive any financial support
Competing Interests: The authors have declared that no competing interests exist

Abstract

BACKGROUND: Egypt is the country with the greatest number of hepatitis C virus (HCV) genotype 4 infections. The latest mass screening campaign in Egypt in 2018 reported an overall HCV seroprevalence of 4.61% (95% confidence interval 4.61 to 4.62) among the 48,345,948 subjects tested. The prevalence of HCV in the cancer population is estimated to range from 1.5 to 32%. HCV *per se* might directly influence health-related quality of life (HRQoL), *via* colonization of microglia in the brain or, indirectly, *via* the effect of systemic inflammatory cytokines which, in turn, can trigger brain interleukin production. Thus, there is an increased interest about the effect of the dual burden of HCV in cancer patients and its impact on the patients'' HRQoL.

AIM: The study is conducted at the outpatient chemotherapy unit of a university hospital in Egypt, over a period of 6 months to estimate their quality of life (QoL) scores according to the European Organization for Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ)-C30 v3.

MATERIALS AND METHODS: A cross-sectional study was conducted, including all patients referred to the chemotherapy clinic during the study period and proven to be HCV positive. Recruited patients were asked to fill the EORTC QLQ-C30 v3 questionnaire, and data regarding their medical conditions were collected from their medical files.

RESULTS: One hundred and sixteen (8.8%) patients were HCV positive. QoL scores were statistically significantly lower from almost all reference values categories published in the EORTC manual.

Introduction

Chronic diseases, such as cancer and hepatitis C infection hepatitis C virus (HCV), among others, have been linked to declining quality of life (QoL) scores individually [1]. Cancer patients were reported to experience lower QoL not only due to their disease status, but also due to the side effects of oncological treatment [2]. The prevalence of HCV in the cancer population is estimated to range from 1.5% to 32%, this variation was based on the prevalence of HCV in the general population [3].

Health-related QoL (HRQOL), as an objective instrument for evaluating patients' physical, psychological, and social adaptation, among other indicators, it has become significantly favorable to clinical doctors and health managers to use to compare between treatment protocols [5]. Most studies report that evaluating HRQOL has become important in public health and clinical research because it was considered the gold standard to report patient's experiences with illness and treatment [6]. The latest mass HCV screening campaign, Egypt 2018, has reported an overall HCV seroprevalence of 4.61 (95% confidence interval 4.61 to 4.62) among the 48,345,948 tested [4]. Yet, still, it still holds the highest number of HCV prevalence recorded worldwide. Moreover, there is a strong association that exists between the incidence of liver cancer and HCV infection through triggering liver cirrhosis, which was evident in the distribution of liver cancer recorded in the Egyptian National Cancer Registry followed that of HCV infection as per the Egyptian Demographic and Health Survey [5].

On the other hand, the Egyptian cancer registry reported 108,600 newly diagnosed cancer cases per year in 2013, and projected that this number would be 331,169 in 2020 [6]. The overlapping HCV-positive cancer population is the main focus of this study, and how the dual chronicity of both pathologies affects the QoL of those patients in particular, since clinical aspects have been addressed reporting that HCV-positive cancer patients on oncological treatment are at higher risk of HCV viral reactivation/flare, and progression to liver fibrosis and consequently cirrhosis leading their deterioration [7]. Despite all the aforementioned facts,

Egypt still pays less attention to the HRQOL of patients with HCV infection.

Thus, the current study aimed to assess the QoL of HCV-positive patients with concurrent various types of cancer, to evaluate the impact of the dual burden of disease on HRQoL, compared to the mean scores of HRQoL of HCV-negative cancer patients (as recorded in the European Organization for Treatment of Cancer Quality of Life Questionnaire [EORTC QLQ] C-30 v3 reference value manual) [10].

Materials and Methods

Study design

This was a cross-sectional study of all patients attending the outpatient chemotherapy clinic of the Oncology Department in Ain Shams University Hospital in Egypt for 6 months from January 2019 to June 2019.

Study population and setting

A total of 1319 recently diagnosed patients attended the chemotherapy outpatient unit within the study period, out of which 116 (8.8%) tested HCV positive by HCV antibody then confirmed by quantitative polymerase chain reaction before inclusion into the study, none of which received direct-acting antiviral treatment for HCV or chemotherapy during or before the study. Moreover, patients on hormonal treatment only, radiotherapy only, on palliative/supportive treatment only, with median survival <3 months, and those with combined viral infection (e.g., HBV and HIV) were not included as they are managed by the chemotherapy outpatient unit.

Study tool

The current study used the EORTC QLQ-C30 v3 questionnaire developed by the EORTC, which is the most commonly used QoL questionnaire in cancer and of major influence on international cancer research, with validated translations in more than 100 languages that are also cross-culturally tested [8]. One of the major strengths of the EORTC questionnaires is having a manual of reference values that allowed the comparison of the results to the scores of the general population of cancer patients [9].

The quality of life questionnaire EORTC QLQ C-30 v3 was filled out before the beginning of the treatment cycles, after the filling of the consent forms by the participants. Data regarding their medical information were obtained from medical records.

Handling of quality of life

Questionnaire: An email was sent to the EORTC to obtain approval for the use of the QLQ -C30 v3 questionnaire, the verified Arabic translation, and the reference scoring manual. Consent was obtained from patients before enrolment in the study, and they were asked to fill out the QOL form before the initiation of their treatment protocols.

Data collection and statistical analysis

Data were collected using hard copy forms entered in a separate Excel 2010 sheet and then exported to be analyzed using SPSS 21-win Package. Data were quantitative nonparametric in nature so Wilcoxon signed-rank test was used to compare single median for reference value with significance set at $p = 0.05$.

Ethical considerations

The study was approved by the research ethics committee, also agreements from the responsible authority were obtained. Confidentiality of the collected data was guaranteed. Participants were informed that responding is voluntary and that they can withdraw without stating any reason. Feedback about the results was given to the responsible authority at the end.

Results

Sociodemographic and clinical data

The mean age of all cases of both sexes was 53.9 years with range between 22 and 81. Females and males constituted 62.9% and 37.1% of cases, respectively. The majority of cases were presented with solid tumors (81.0%), out of which breast cancer was the most commonly presented constituting 34% of all solid tumors. The most common cancer among all cases also was breast cancer 27.6% (n = 32), then GIT cancers 21.6 % (n = 25) of which (n = 8) were hepatocellular carcinoma. Majority of patients were nonmetastatic (61.2%) (Table 1).

Table 1: Summary of demographic data and types of cancer among the sample (n = 116)

Demographic	n (%)
Age group (years)	
18–≤ 65	100 (86.2)
>65	16 (13.8)
Gender	
Male	43 (37.1)
Female	73 (62.9)
Type of cancer	
Hematological	22 (19.0)
Solid tumors	94 (81.0)
Breast	32 (27.6)*
GIT	25 (21.6)*
Presence of metastasis	
Metastatic	45 (38.8)
Nonmetastatic	71 (61.2)

*Percentage from solid tumors only. GIT: Gastrointestinal tract.

Quality of life data

Function scores

Scores were calculated and compared to the EORTC reference manual. All the domains were statistically significant different from the referenced value being worse, except emotional function and cognitive function showed no statistical difference ($p < 0.05$) (Table 2).

Table 2: Association between function scores of study cases and reference data

Tested field	Sample median	Reference median[10]	p
Physical function	70.0	80	<0.001*
Role function	66.7	83.3	0.013*
Emotional function	75.0	75	0.816
Social function	66.7	83.3	<0.001*
Cognitive function	83.3	83.3	0.464
Financial difficulties	66.7	0	<0.001*
Global health score	56.3	66.7	<0.001*

*Significant values, analysis was done by sign test. p<0.05 is statistically significant.

Symptom scores

When comparing the symptom scores to the reference values, it appears that there is a significant statistical difference ($p < 0.05$) across all symptoms, being worse in HCV-positive patients patients (Table 3).

Table 3 : Association between recorded single symptom scores and their reference value

Tested field	Sample median	Reference median[10]	p
Appetite loss	66.7	21.1	<0.001*
Nausea and vomiting	66.7	0	<0.001*
Pain	50.0	16.7	<0.001*
Fatigue	55.6	33.3	<0.001*
Constipation	50.0	0	<0.001*
Dyspnea	33.3	0	<0.001*
Diarrhea	33.3	0	<0.001*
Insomnia	33.3	33.3	<0.001*

*Significant values, analysis was done by sign test. p<0.05 is statistically significant.

Discussion

In our study, out of the 1319 patients who planned to start their treatment at the outpatient chemotherapy unit during the study period, 8.8% (n = 116) of the patients tested positive for HCV-Abs. This percentage is higher than the percentage detected in the study by Ramsy *et al.* [11] where only 2.4 % of cancer patients tested HCV positive; this difference can be attributed to the heavy burden of the disease in Egypt compared to the USA, where his sample was taken (1.7% in the USA and 4.61 Egypt in the adult population) [4], [12].

Our study's QOL values appeared to be generally worse than the reference values published in the EORTC reference values manual scores. Our study displayed that the physical function, role function, social function, and all symptoms function scales for our study group were significantly lower than that recorded in the reference manual. The deterioration in scores might be attributed to the dual burden of disease in our sample, as other studies focusing on chronic HCV infection on its own such as that by Abd el Wahab *et al.* [13] reported significant deterioration of QOL scores, especially for cognitive scores and fatigue using the generic short-form -12 questionnaire.

Other studies focusing on the effect of cancer and chemotherapy on the QoL such as that by Dehkord *et al.* [14] reported fairly favorable scores of 66% in a sample of cancer patients in different phases of their chemotherapy protocols using EORTC QLQ-C30 questionnaire, while our study reported less favorable outcomes even before initiating chemotherapy cycles and that was consistent along with all scores except only for cognitive and emotional symptom scores which further elaborate the detrimental effect of the coexistence of cancer and HCV infection.

In our study, the emotional and cognitive function scales did not appear to be significantly different between the study sample and reference values; this can be explained by the lack of awareness of those patients of their HCV-positive status also the general spiritual approach of the Egyptian population toward sickness and disease could have contributed to stabilizing their emotional and cognitive functions.

Conclusion

Cancer patients with concurrent HCV infection experienced lower QoL as compared to the general population of cancer patients recorded in the EORTC QLQ C-30 v3 reference value manual.

Limitations of the study

The study was conducted on a heterogeneous group of cancer types which does not allow the identification of which type of cancer has a more detrimental outcome on QoL when combined with HCV infection. Moreover, the small sample size also did not allow in-depth intergroup comparisons.

References

1. Samiei Siboni F, Alimoradi Z, Atashi V, Alipour M, Khatooni M. Quality of life in different chronic diseases and its related factors. Int J Prev Med. 2019;10:65. https://doi.org/10.4103/ijpvm.IJPVM_429_17
PMid:31198500
2. Smyth EN, Shen W, Bowman L, Peterson P, John W, Melemed A,

et al. Patient-reported pain and other quality of life domains as prognostic factors for survival in a phase III clinical trial of patients with advanced breast cancer. Health Qual Life Outcomes. 2016;14:52. https://doi.org10.1186/s12955-016-0449-z

PMid:27016084

3. Borchardt RA, Torres HA. Challenges in managing hepatitis C virus infection in cancer patients. World J Gastroenterol. 2014;20(11):2771-6. https://doi.org/10.3748/wjg.v20.i11.2771

PMid:24659870

4. Waked I, Esmat G, Elsharkawy A, El-Serafy M, Abdel-Razek W, Ghalab R, *et al.* Screening and treatment program to eliminate hepatitis C in Egypt. N Engl J Med. 2020;382(12):1166-74. https://doi.org/10.1056/NEJMsr1912628

PMid:32187475

5. El-Zanaty F, Way A. Egyptian Demographic Health Survey. Cairo, Egypt: El-Zanaty and Associates, and Macro International; 2009.

6. Ibrahim AS, Khaled HM, Mikhail NN, Baraka H, Kamel H. Cancer incidence in Egypt: Results of the national population-based cancer registry program. J Cancer Epidemiol. 2014;2014:437971. https://doi.org/10.1155/2014/437971

PMid:25328522

7. Hwang JP, LoConte NK, Rice JP, Foxhall LE, Sturgis EM, Merrill JK, *et al.* Oncologic implications of chronic hepatitis C virus infection. J Oncol Pract. 2019;15(12):629-37. https://doi.org/10.1200/JOP.19.00370

PMid:31825756

8. Veilkova G, Bottomly A. Looking Back at 30 Years of Progress from Methodological Developments to Making a Real Impact on Oncology Practice. Belgium: European Organization for Research and Treatment of Cancer QL Newsletter: 2012. p. 2.

9. Aaronson NK, Ahmedzai S, Bergman B, Bullinger M, Cull A, Duez NJ, *et al.* The European organization for research and treatment of cancer QLQ-C30: A quality-of-life instrument for use in international clinical trials in oncology. J Natl Cancer Inst. 1993;85(5):365-76. https://doi.org/10.1093/jnci/85.5.365

PMid:8433390

10. Scott, NW, Fayers PM, Aaronson NK, Bottomley A, Koller M, Groenvold M, *et al***.** EORTC QLQ-C30 Reference Values. Belgium: European Organisation for Research and Treatment of Cancer; 2008.

11. Ramsey SD, Unger JM, Baker LH, Little RF, Loomba R, Hwang JP, *et al.* Prevalence of hepatitis B virus, hepatitis C virus, and HIV infection among patients with newly diagnosed cancer from academic and community oncology practices. JAMA Oncol. 2019;5(4):497-505. https://doi.org/10.1001/jamaoncol.2018.6437

PMid:30653226

12. Hofmeister MG, Rosenthal EM, Barker LK, Rosenberg ES, Barranco MA, Hall EW, *et al.* Estimating prevalence of HEPATITIS C virus infection in the United States 2013-2016. Hepatology. 2019;69(3):1020-31. https://doi.org/10.1002/hep.30297

PMid:30398671

13. Abd El-Wahab EA**.** Health-related quality of life among chronic HCV patients: Measuring disease and treatment response impacts. Ann Trop med Public Health. 2016;9:152-8. https://doi.org/10.4103/1755-6783.181656

14. Dehkordi A, Heydarnejad MS, Fatehi D. Quality of life in cancer patients undergoing chemotherapy. Oman Med J. 2009;24(3):204-7. https://doi.org/10.5001/omj.2009.40

PMid:22224186