Oncologic Rehabilitation in the COVID-19 Pandemic: The Situation in Clinics

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Abstract

\textbf{Background:} Oncological rehabilitation is an important pillar in the treatment of cancer patients. Due to the COVID-19 pandemic, this form of therapy is particularly challenged, as it relies heavily on group therapies. The aim of the study was to find out what impact the pandemic has had on oncological rehabilitation so far and how the rehabilitation clinics have dealt with it. \textbf{Methods:} A web-based survey was used to collect data from 14 oncological rehabilitation clinics on the impact of the COVID-19 pandemic on occupancy, staffing trends, and hygiene measures for the observation period from March 1, 2020, to February 28, 2021. The data were compared with the same period 1 year earlier. In addition, the compensatory measures taken with regard to therapy were recorded. \textbf{Results:} While only 15,272 patients were rehabilitated in the period under review, 21,257 patients were rehabilitated in the same period 1 year earlier. This corresponds to a decrease in occupancy of 28%. Three clinics were affected by temporary closures due to the pandemic. In 39% of the clinics, screening tests for patients had already been started for more than 8 months, while this was also offered to staff in only 23% of the clinics. With regard to changes in the therapeutic offer, more physiotherapeutic small groups with a reduced number of participants were used. This was also used in the area of sports therapy and education offers by 73% and 60% of the clinics, respectively. Overall, 92% of the participants assumed an economic recovery at the time of the survey. \textbf{Conclusion:} Despite a considerable decrease in occupancy in the oncological rehabilitation clinics, the therapies could be changed and carried out in a hygiene-compliant manner. Screening tests were offered at an early stage for patients as well as somewhat delayed for staff. The data show that pandemic-consistently changes in oncological rehabilitation are possible and that supply chains can be maintained.

Introduction

Today, oncological rehabilitation represents the third pillar of medical care for patients with cancer. It is a component of our health care system and is firmly anchored in the Social Insurance Code in Germany [1]. Oncological rehabilitation is mainly financed by the German Pension Insurance and to a lesser extent by the statutory and private health insurance funds. In 2019, more than 160,000 patients were treated by means of oncological rehabilitation [2]. The basis of medical rehabilitation is the alleviation or elimination of health disorders resulting from cancer. This should enable or at least facilitate participation in social life and, if necessary, in working life. Medical rehabilitation follows a holistic approach that goes beyond the recognition, treatment, and healing of a disease and also takes into account contextual factors such as the
social and professional environment [3]. Oncological rehabilitation therefore regularly includes a complex, multimodal therapy package from various medical fields such as sports science, physiotherapy, occupational therapy, and speech therapy as well as nutritional medicine and psycho-oncology [1]. Under the supervision of an interdisciplinary and thus multiprofessional rehabilitation team, the patients are mainly treated within the framework of group therapies on the premises of the clinic but also outside. This active form of therapy is supplemented by training and counselling with regard to their health problems. Because of this constellation, oncological rehabilitation is particularly affected by the COVID-19 pandemic [4–6]. In addition, patients in oncological rehabilitation represent a particularly vulnerable group, as their immune function is especially weakened by the tumour disease and therapy. With the onset of the COVID-19 pandemic, all rehabilitation clinics revised their hygiene concept and adapted the forms of therapy accordingly. Not only were the hygiene regulations stringently implemented but many clinics also implemented corona screening at an early stage [7].

This led to the fact that oncological rehabilitation was and continues to be possible even during the peak phases of the first three pandemic waves, in order to ensure continuous care for patients and to avoid disruption of participation. In a recent publication, it was shown that the timely implementation of pandemic rules in rehabilitation clinics enables the continuation of high-quality oncological rehabilitation, preserves the supply chains in the treatment of cancer patients, and at the same time, does not endanger patients [8]. However, it is not yet clear how these changes have taken place in the clinics, what effort had to be made for this, and how the clinics have dealt with this enormous problem for our health system. Therefore, the Working Group on Oncological Rehabilitation of the German Society for Haematology and Oncology (DGHO), in cooperation with the Working Group on Oncological Rehabilitation and Social Medicine of the German Cancer Society, conducted a survey among the senior physicians of member hospitals to generate data to answer these questions.

**Material and Methods**

In the survey period from May 07 to May 25, 2021, 84 oncological rehabilitation clinics and specialist departments were contacted by e-mail and asked to participate in the online survey. The participants consented to participation and data analysis at the beginning of the survey. The name of the clinic or the participant was not collected so that the survey was anonymous.

The survey was web-based using SurveyMonkey and comprised 37 questions on the topics of clinic occupancy, structural and personnel changes as well as hygiene measures and changes in the range of therapeutic services. The respondents were asked to evaluate the observation period from March 01, 2020, to February 28, 2021, and to compare it with the same period 1 year earlier. A response of 22/84 (26%) of the questionnaires was received. Of these, however, only 14/22 (63%) were analysable for the survey. The remaining 8 questionnaires were only created but not completed, so they were not available for data analysis.

The data was analysed descriptively using SPSS. Due to the low response rate with evaluable questionnaires, all clinics were combined, and no subgroups were formed. Significance analyses were also not possible due to the low participation in the survey.

**Results**

**Clinic Occupancy and Impact**

Thirteen participants provided information on the number of hospital beds they had for oncology patients. The median was 130 beds (range: 10–200 beds). In the period under review, 15,272 patients were rehabilitated in 11 surveyed clinics (median: 1,580 patients, range: 224–2,644 patients). In the comparable period before, 21,257 patients were treated (median: 2,100 patients, range: 163–3,167 patients) (Fig. 1). This corresponds to a cumulative decrease of 5,598 in patients served (82%). Of the 11 participants in the surveyed clinics, 10 (91%) stated that they had suffered a decline in occupancy. 9/13 of the clinics (70%) reported a decline in occupancy of between 20 and 50% and 2/13 (15%) reported a decline in occupancy of up to 75% (Table 1).

For the period under review, 3/11 participants (27%) reported having conducted a pandemic clinic closure. The period of the clinic closure was 1–9 weeks. Furthermore, 4/10 respondents (40%) stated that they had carried out an admission freeze in the period under review of 1–9 weeks. In addition, a pandemic-related loss of specialist staff had to be recorded at 4/13 clinics (33%) (Table 1).

**Hygiene Measures**

Nine of the participants commented on the number of staff and patients who tested positive for COVID-19. In total, a median of 5 staff/patients tested positive during the period under review (range: 1–20). In 5/13 clinics (39%), screening tests for COVID-19 (PCR or rapid test) had already been carried out on patients for 9–12 months at the time of the survey. While in 6/13 clinics (46%) this had been done for 3–8 months, 2/13 clinics (15%) were not yet testing patients. With regard to screening tests for staff, the picture was somewhat different. In all clinics, screening tests had already been carried out at the time of the survey, although in only 3/13 clinics (23%) had this been done for 9–12 months and in 10/13 clinics (77%) only for 3–8 months (Table 1).
Changes in the Therapeutic Offer

In order to pay attention to the distance between patients in rehabilitative therapies, changes were made in the number of participants in group therapies and training offers. All 11 participants interviewed stated that they offered more physiotherapy small groups in their clinics. In addition, 3/11 participants (27%) resorted to more individual therapies in the clinic or chose alternative services. Changes also occurred in the area of sports therapy, so that 8/13 clinics (60%) offered more small groups, while only one clinic used more individual therapies and two other clinics implemented alternative offers. With regard to the training offers, 6/13 clinics (46%) also reacted with more small groups, while 2/10 clinics (20%) each used more individual counselling or also resorted to alternative offers. In addition, in 7/14 clinics (50%), there was the possibility to offer training virtually (Table 2).

Table 1. Changes in clinic occupancy, staff, and corona screening (n = 13)

| Question                                                                 | N  | %   |
|--------------------------------------------------------------------------|----|-----|
| How high was the decrease in clinic occupancy?                           |    |     |
| 20–50%                                                                   | 9  | 70  |
| 51–75%                                                                   | 2  | 15  |
| n.a.                                                                     | 2  | 15  |
| How long have you been carrying out corona screening tests (PCR/ST) on patients? |    |     |
| 3 months                                                                 | 3  | 23  |
| 6 months                                                                 | 3  | 23  |
| 9 months                                                                 | 4  | 31  |
| 12 months                                                                | 1  | 8   |
| No tests so far                                                          | 2  | 15  |
| How long have you been carrying out corona screening tests (PCR/ST) on staff? |    |     |
| 3 months                                                                 | 7  | 54  |
| 6 months                                                                 | 3  | 23  |
| 9 months                                                                 | 2  | 15  |
| 12 months                                                                | 1  | 8   |
| No tests so far                                                          | 0  | 0   |
| Do you have a pandemic-related loss of specialist staff?                 |    |     |
| Yes                                                                      | 4  | 30  |
| No                                                                       | 9  | 70  |

n.a., not answered; PCR, polymerase chain reaction; ST, rapid antigen test.
At the time of the survey, the participants of 5/12 clinics (42%) assumed a recovery in occupancy development for 2021. In 6/12 other clinics (50%), an unchanged occupancy rate was expected for the current year, and only in one clinic, a further decrease in occupancy was assumed. Whether the clinic was economically threatened could not be assessed by 5/11 of the participants (38%), while 31% (4/11 of the participants) saw an economic threat or did not assume this. None of the participants expected a definite closure of the clinic.

Discussion
While more and more data can be found regarding rehabilitation of patients after COVID-19 infection, the impact of the pandemic on inpatient oncological rehabilitation in Germany is still unclear [9]. In order to record these effects of the pandemic, the Working Group on Oncological Rehabilitation of the DGHO, in collaboration with the Working Group on Oncological Rehabilitation and Social Medicine of the German Cancer Society, conducted a survey within its members in May 2021.

However, the response rate of 26% of questionnaires was low, of which only just under one-third could ultimately be evaluated for the survey. In the authors’ view, the data obtained nevertheless allow the conclusion that oncological rehabilitation reacted quickly to the pandemic by changing its structures. More than half of the clinics carried out PCR tests on patients at an early stage and then replaced them with rapid antigen tests as they became available. Somewhat delayed, screening tests were also offered to staff, mostly after the introduction of rapid antigen tests.

In order to comply with the hygiene regulations, the group sizes were reduced in all clinics surveyed and mostly compensated by more small groups. To a lesser extent, more individual therapies or alternative offers were carried out. Half of the clinics stated that they were also able to conduct training and counselling virtually, which partly speaks for a good digital equipment of the rehabilitation clinics, but also reveals a potential for improvement.

Nevertheless, despite these measures, a clear decline in occupancy rates in the oncological rehabilitation clinics had to be recorded. The reason for this is most likely to be found in the postponement of acute medical treatments such as operations, in the provision of rehabilitation beds for the acute care of COVID-19 patients, but also in the restrained use of oncological rehabilitation by the patients themselves [10]. More than two-thirds of the clinics experienced occupancy declines of up to 50%, while only a smaller proportion of clinics experienced even higher occupancy declines. Compared to 2019, the very high occupancy decline of 28% was not insignificant. This is mainly due to the COVID-19 pandemic, as such a pronounced drop in occupancy has not been recorded in the last 20 years. In particular, this should be seen against the background that the majority of oncological rehabilitation clinics can only operate profitably if they have an occupancy rate of more than 85%. Certainly, it is most likely due to the use of the short-time working regulation as well as the financial compensation within the framework of the Social Service Providers Act that there has not been a relevant proportion of clinic closures so far. It was also possible to prevent a pandemic-related loss of spe-

| Table 2. Changes in the therapeutic offer |
|------------------------------------------|
| Question                                      | N  | %  |
| How has the number of individual therapies changed (n = 14)? |     |    |
| Become less                                   | 2  | 14 |
| Become more                                   | 3  | 21 |
| Remains the same                              | 9  | 65 |
| How was the reduction of patients in group therapies compensated (n = 11)? |     |    |
| More small groups                             | 11 | 100|
| More individual therapies                     | 3  | 27 |
| Through alternative offers                    | 3  | 27 |
| How was the reduction of patients compensated in sports groups (n = 11)? |     |    |
| More small groups                             | 8  | 73 |
| More individual therapies                     | 1  | 9 |
| Through alternative offers                    | 2  | 18 |
| How was the reduction of patients compensated in training offers (n = 10)? |     |    |
| More small groups                             | 6  | 60 |
| More individual counselling                   | 2  | 20 |
| Through alternative offers                    | 2  | 20 |
| Do you have the possibility to conduct trainings virtually (n = 14)? |     |    |
| Yes                                          | 7  | 50 |
| No                                           | 7  | 50 |
cialist staff at more than two-thirds of the clinics. Never-
theless, this was recorded at one-third of the clinics, which may have further exacerbated the precarious staff situa-
tion in oncological rehabilitation.

In a presentation during the annual meeting of the
DGHO 2020, Reuss-Borst et al. [7] were able to demon-
strate the data from over 5,000 rehabilitation patients
who had received a PCR test for COVID-19 from April to
September 2020. Only a vanishingly small proportion of
less than 0.1% of the patients tested COVID-19 positive.
Then, in a second series of tests from October 2020 to
February 2021, only 0.9% of nearly 7,000 patients tested
positive for COVID-19. The authors interpreted their
data from over 12,000 patients to mean that they saw re-
habilitation as a safe and defensible medical tool even in
times of a pandemic [7].

In a previously published paper, Leibbrand and Seifart
[8] were able to show that the timely application of pan-
demic rules in rehabilitation clinics makes it possible to
continue oncological rehabilitation at a high level and
thus maintains the supply chain for cancer patients. The
acceptance of staff and patients was high in the oncologi-
cal rehabilitation clinics, so that although a significant
drop in occupancy was also recorded in the two clinics
involved, specialists could largely be retained [8].

Our data show the impact of the COVID-19 pandem-
ic on oncological rehabilitation and how clinics dealt with
it in terms of implementing hygiene measures. To the best
of our knowledge, there have been no comparable studies
to date. Thus, our data complement the published studies
already mentioned and show that oncological rehabilita-
tion can be carried out safely for patients and staff even in
times of a severe pandemic.

Our data are limited, in particular, by the low response
rate to the questionnaires, so that we were unable to col-
lect representative data on oncological rehabilitation in
Germany. The low response rate is not so much due to the
way the survey was conducted but rather to the partici-
pants’ reluctance to provide information. In particular,
we were not able to collect data with regard to the finan-
cial effects on the clinics. Nevertheless, our results offer a
first insight into oncological rehabilitation during the
COVID-19 pandemic and show that rehabilitative pro-
cesses can be quickly adapted to acute health policy
changes.

Conclusion

Based on the data we collected on oncological reha-
bilitation during the COVID-19 pandemic, we conclude
that this therapeutic measure can be carried out hygieni-
cally and safely. Despite the considerable drop in occu-
pancy and the financial burdens for the clinics that this
probably entailed, it was possible to prevent worse things
from happening in this medical sector by means of legal
regulations.

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Statement of Ethics

After review by the Ethics Committee of the Philipps Univer-
sity Marburg, Department of Medicine, it is not necessary to ob-
tain an ethics vote for a purely anonymized data collection (EK_
MR_8_3_2022).

Conflict of Interest Statement

All authors declare that they have no conflicts of interest.

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Author Contributions

Oliver Rick, Wilfried Hoffmann, and Monika Anna Steimann
acknowledge that they made significant contributions to the con-
ception; design of the work; and the acquisition, analysis, and in-
terpretation of the data. In addition, all authors critically revised
the paper for important intellectual content. Finally, all authors
have given final approval of the version to be published and declare
responsibility for all aspects of the work and for ensuring that is-
issues regarding the accuracy or integrity of any part of the work
have been adequately investigated and resolved.

Data Availability Statement

All data analysed during this study are included in this article.
Further enquiries can be directed to the corresponding author.

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