



Use of music therapy in pediatric oncology: an Italian AIEOP multicentric survey study in the era of COVID-19

Filippo Giordano¹ · Paola Muggeo² · Chiara Rutigliano² · Federica Barzaghi³ · Laura Battisti⁴ · Paola Coccia⁵ · Antonella Colombini⁶ · Maria Rosaria D'Amico⁷ · Raffaella De Santis⁸ · Maurizio Mascarin⁹ · Rossella Mura¹⁰ · Daniela Onofrillo¹¹ · Katia Perruccio¹² · Simona Rinieri¹³ · Francesca Trevisan¹⁴ · Daniele Zama¹⁵ · Ottavio Ziino¹⁶ · Marica De Lucia¹⁷ · Nicola Santoro² · Simone Cesaro¹⁸

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Abstract

Music therapy (MT) is a complementary therapy offered to children, young adults, and their families in pediatric oncology and palliative care. We performed a survey to collect information about MT in pediatric oncology in Italy. The outbreak of COVID-19 unavoidably changed the scenario of MT, suggesting some considerations presented in this survey. 27/32 (84.4%) centers belonging to the Infections and Supportive Therapy Working Group of Association of Pediatric Hematology and Oncology (AIEOP) completed in 2 different time points (T1 and T2) an online survey on MT, before and after COVID-19 pandemic. Different kinds of music approach were used taking care of patients in 21/27 centers, while in 14/21 (66%), a specific project of MT conducted by a music therapist was present. In 6/14 centers, MT activities were delivered for <3 h/week, in 3 centers for >3 and <10 h/week, and in the remaining 5 for >3 h/week. MT sessions were in different areas, day hospital, or ward (patient rooms, operating rooms, waiting rooms), on an individual basis or by groups. Patients were invited to MT by psychologists, caring physician, or nurse, or on equipé decision. MT was evaluated with tools self-made by music therapist in 11/14 centers. After COVID-19, MT has been withdrawn in 3 centers, sessions in the waiting rooms were reduced, individual sessions were preferred, and enrollment by multidisciplinary teams increased.

Conclusion: This survey represents the starting platform to compare and discuss different experience of MT in AIEOP centers, to implement MT in pediatric oncology for a more qualified assistance to patients, and to improve quality of care.

What is Known:

- Music therapy in pediatric oncology and palliative care can be used for the management and prevention of various somatic and psychological symptoms of patients and often is provided to children together with their families.
- In Italy the application of Music therapy in the AIEOP pediatric oncology centers is constantly increasing, but due to the outbreak of Covid-19 Pandemic, Italian pediatric oncology departments were obliged to adopt restrictive measures.

What is New:

- Although the majority of Centres did not abrogate MT interventions, judgment about limitation should be carefully taken since MT helps children and even more adolescents in their fight against cancer.
- The best practice of Music therapy in pediatric oncology requires communication and collaboration among qualified music therapists and multidisciplinary care team, using a model of family-centered care that actively involves parents/ caregivers in assessment, treatment planning, and care delivery.

Keywords Music therapy · Children · Adolescents · Cancer · Complementary therapy

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Nicola Santoro and Simone Cesaro are co-last authors.

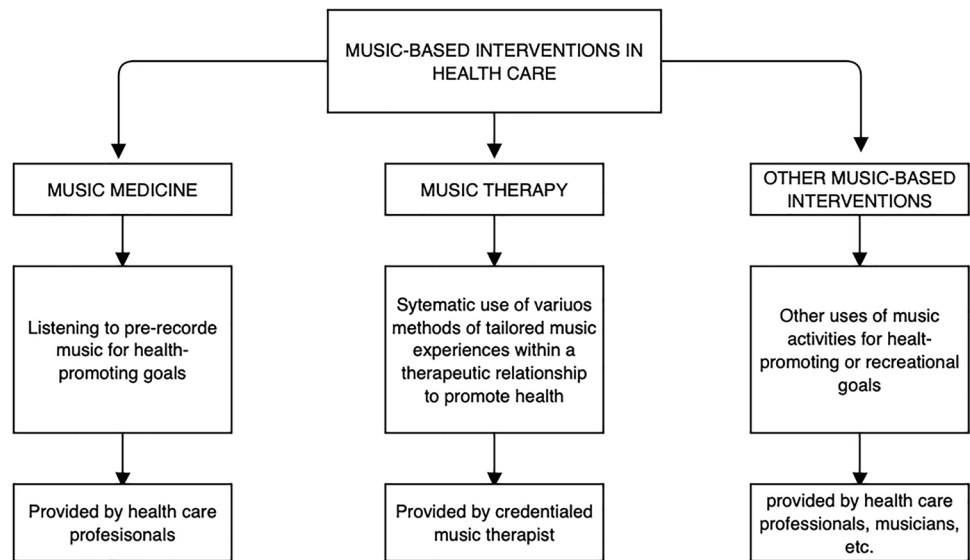
✉ Filippo Giordano
filippo.giordano@uniba.it

Extended author information available on the last page of the article

Abbreviations

MT Music therapy
AIEOP Italian Association of Pediatric Hematology and Oncology

Fig. 1 Types of music-based interventions in health care and medical setting. The figure is in Stegemann et al. [4] *Music Therapy and Other Music-Based Interventions in Pediatric Health Care: An Overview*



Introduction

Worldwide every year, it is estimated that there will be more than 400,000 cases of childhood cancer [1].

In Italy, considering the reported incidence of about 170 cases/1 million children, there will be about 7000 children and 4000 adolescents suffering from cancer on a 5-year basis.

During the various stages of oncological disease, due to frequent invasive medical treatments and the need for possible prolonged hospitalizations, children and their families experience severe stress and a compromise in their quality of life [2].

Standard medical care is increasingly supplemented by the use of different psychological and psychosocial complementary interventions, with the aim of alleviating the negative effect of cancer and its treatment process [3–5].

Music therapy (MT), differently by other music-based approaches used in health (Fig. 1), has received increasing attention in the last few years [3].

MT in pediatric oncology and palliative care can be used for the management and prevention of various somatic and psychological symptoms of patients [6–10] and often is provided to children together with their families [11].

Although in Italy the application of MT in the field of pediatric oncology is constantly increasing, a survey regarding the presence and application of MT in the Italian Pediatric Hematology-Oncology Association (AIEOP) cancer centers has never been conducted.

Furthermore, due to the outbreak of COVID-19 pandemic, Italian pediatric oncology departments were obliged to adopt restrictive measures to minimize the risk of in-hospital infections in frail patients and staff members [12, 13], reducing accesses to the wards and psychological and psycho-social support activities as MT.

The purpose of this survey study was to collect and summarize information about MT in pediatric oncology in order to advance our understanding about current clinical practice before pandemic across Italian AIEOP hospitals. Moreover, the outbreak of COVID-19 unavoidably changed the scenario of MT in AIEOP centers, suggesting some considerations presented in this survey.

Design and methods

Survey

The survey was developed using SurveyMonkey®. Nine questions were prepared and sent out by e-mail to 32 hematology oncology centers belonging to the Infections and Supportive Therapy Working Group of the Italian Pediatric Hematology-Oncology Association (AIEOP).

The question format used included check boxes for lists and was made up of 2 parts according to the aim of the survey:

1. Questions 1 and 2 explored if the music was being used and by whom (music therapist, musicians, volunteers, nurses, medical doctor, or others).
2. Questions 3–9 regarded the modality of delivering MT according to frequency, setting and characteristics (individualized or by groups), modality of patients' enrollment in MT, and evaluation instruments.

Questions 3 to 9 were addressed only for the centers where there was a certified music therapist (Table 1).

The answers were required to represent the local policies, therefore, faithfully reflecting current practice and not personal opinion.

Table 1 Survey questions

Topic	Questions
<i>Music-based intervention</i>	1. Is music used for the well-being of patients in your center?
<i>Music therapy focus</i>	2. Who uses a music-based intervention for the well-being of patients?
<i>Frequency</i>	3. How many hours a week is music therapist present?
<i>Setting 1</i>	4. Where music therapy session is provided?
<i>Setting 2</i>	5. Which environments are used for the session?
<i>Individual vs group</i>	6. How are the sessions?
<i>Enrollment</i>	7. Who enrolled patients to music therapy?
<i>Evaluation</i>	8. How is the evaluation carried out?

Data collection

Data were collected at the beginning of 2020, from February to March 2020 (T1). Likewise, the survey was repeated from October 2021 to January 2022 (T2) to find out the effect of COVID-19 restrictions on the practice of MT in the AIEOP centers.

Data analysis

The responses within Survey Monkey were downloaded into a Microsoft Excel (2010) spreadsheet and organized by data type and content. The data were analyzed descriptively with the assistance of a statistical consultant.

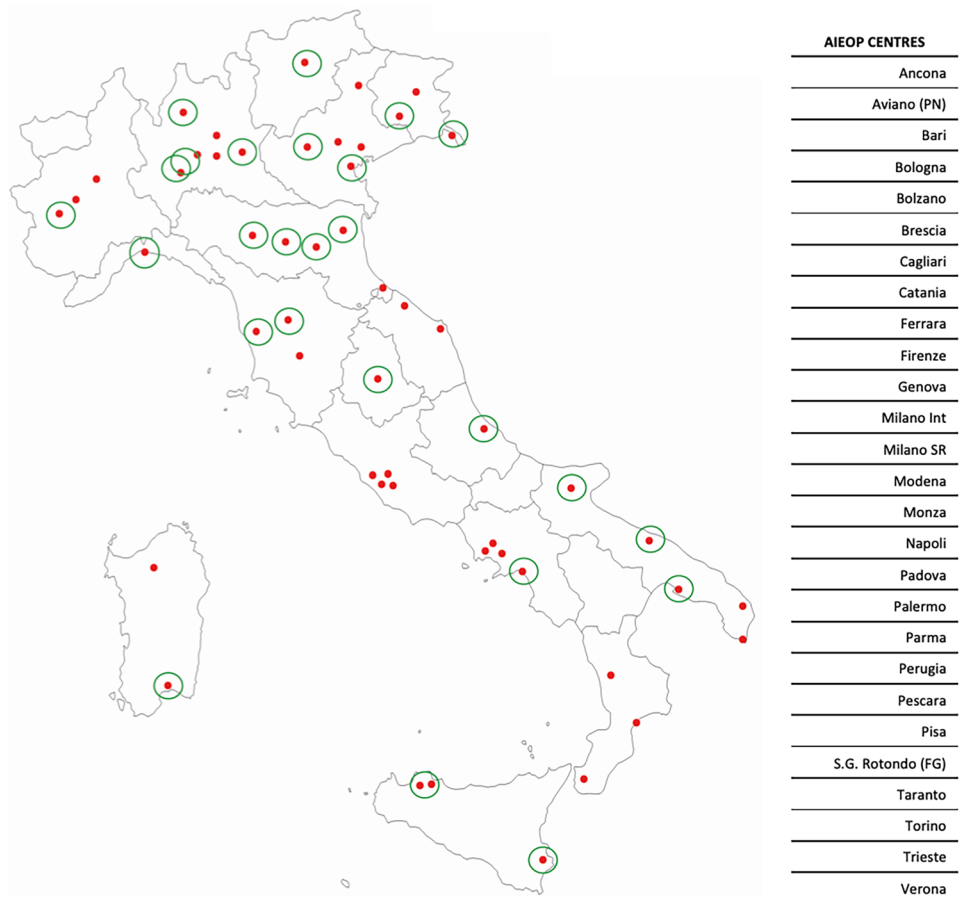
Results

A total of 27/32 centers (84.4%) filled in the survey questionnaire. The participating centers showed a national wide distribution (Fig. 2).

In T1, 21 out of 27 (77.7%) centers declared to use music with patients. In T2 centers decreased from 21 to 18 (66.67%) (Fig. 3a).

In T1, 14 out of 21 (66.6%) declared to have a music therapist, while a musician or a volunteer was present in 5 centers each. In T2 the presence of music therapists decreased to 61.11% (11 out of 21). Professionals and volunteers also decreased from 23.81 to 11.11% (Fig. 3b).

Fig. 2 The AIEOP centers participating to the survey. Twenty-seven out of 32 contacted centers, belonging to the Infection and Supportive Therapy Working Group of the Italian Paediatric Hematology-Oncology Association (AIEOP)



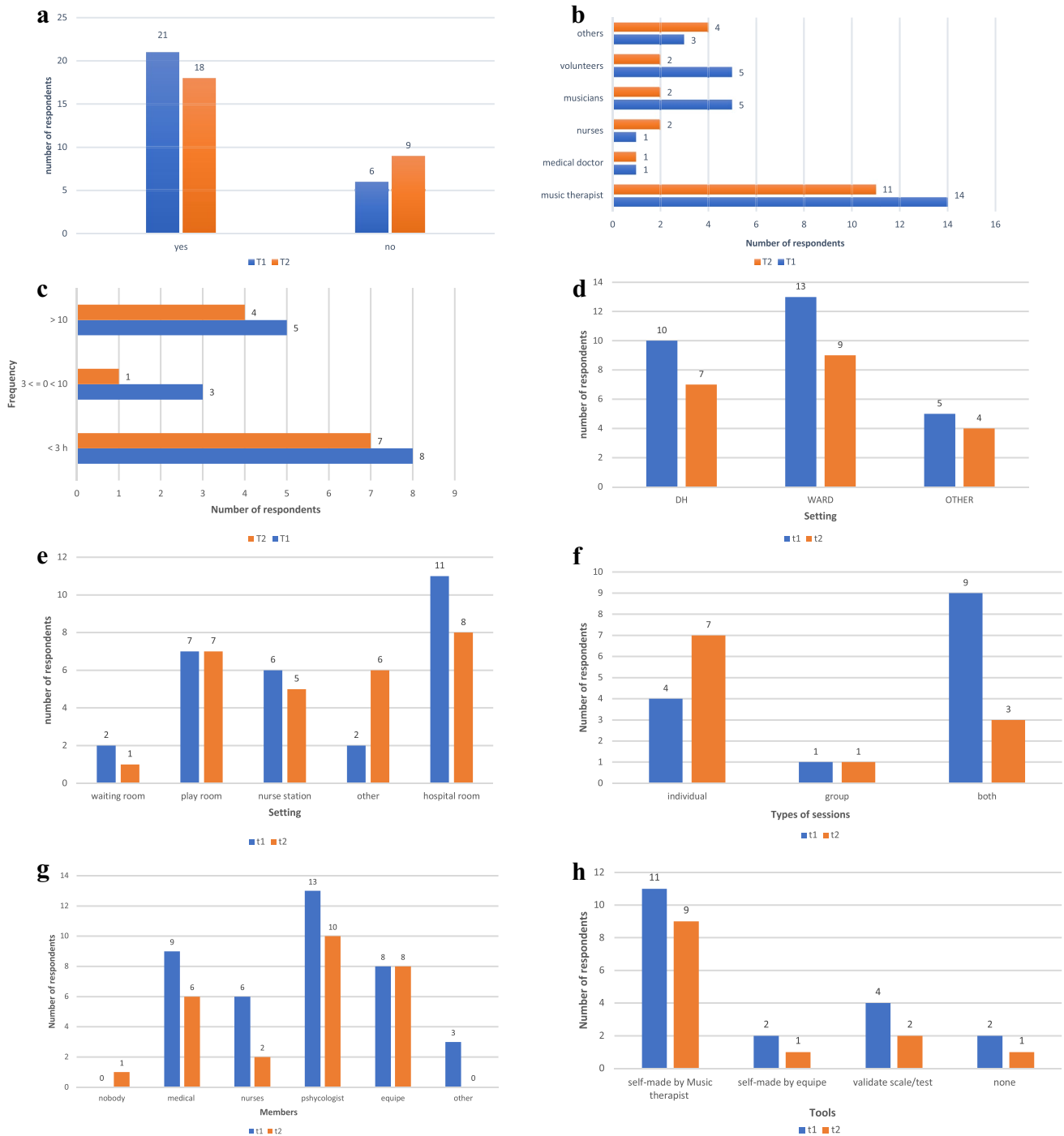


Fig. 3 **a** Music-based intervention in AIEOP centers. **b** Who uses a music-based intervention? **c** Reported frequency of music therapy intervention provided by a certified music therapist. **d** Setting of music therapy interventions. **e** Use of music therapy interventions in

practice settings. **f** Type of music therapy sessions. **g** Team members who enrolled patients to music therapy. **h** Tools used to determine effectiveness of music therapy

Frequency

In T1, 6 centers provided MT for < 3 h/week (42.85%), 3 centers from 3 to 10 h per week (21.43%), and 5 centers

more than 10 h per week (35.71%). In T2, 6 centers provided MT for < 3 h/week (54.54%), 1 center (9.09%), and 4 centers (36.36%) for more than 10 h per week (Fig. 3c).

Setting

MT was delivered in different areas of the ward.

In T1, MT was provided in day hospital (10 centers (71.43%)), in the ward (13 centers (92.86%)), or other (5 centers (35.71%)). In T2 all alternatives were lower than T1, but with the same trend (Fig. 3d).

In both periods, the most used environments for MT sessions were hospital rooms, with 11 centers (78.57%) in T1 and 8 centers (72.73%) in T2. The use of waiting rooms decreased between T1 and T2 by 5.2%, while all other options increased (Fig. 3e).

Individual vs group session

In T1, 64.29% of MT sessions were carried out with both modalities (individual and group). This option fell by 37.02% in T2 (27.27%). In T2, individual sessions increased by 63.64% compared to T1 (28.57%) (Fig. 3f).

Enrollment

In T1 and T2, the psychologists enrolled patients to MT (92.86% vs 90.91%). In T2, the enrollment by both medical staff (64.29 to 54.55%) and nurses (42.86 to 18.18%) decreased. Enrollment by multidisciplinary teams increased in T2 compared to T1 (72.73% vs 57.14%) (Fig. 3g).

Evaluation

In T1 MT was evaluated with tools self-made by music therapist (11 centers (78.57%)) and multidisciplinary equipe (2 centers (14.29%)), validate scale/test (4 centers (28.57%)), and none (2 centers (14.29%)).

In T2, evaluation of MT decreased in all centers. Despite this, tools self-made by music therapist increased (9 centers (81.82%)) (Fig. 3h).

Discussion

In this survey, we collected and analyzed information about practice of MT in pediatric oncology in 32 AIEOP centers in Italy.

MT is defined as the systematic use of musical experiences aimed at achieving a therapeutic goal by a trained music therapist and implies the establishment of a relationship between patient, music, and music therapist [14, 15]. MT requires always a process of initial assessment, treatment, and evaluation. According to this definition, all other music-based interventions were excluded from this analysis.

Based on our knowledge, this is the first survey collecting information about MT application in pediatric oncology in Italy.

This survey shows that, before the outbreak of pandemic, MT was provided in about 50% of centers responding to the survey (14 out 27). After pandemic, MT has been suspended in 4 centers and provided in 1. This is likely related to the limitation of accesses to the ward adopted in the hospitals to contain the COVID-19 spreading. Nevertheless, most centers had been able to maintain MT interventions.

MT was delivered with variable frequency, up to 3 h per week or more than 10 h, and sessions took place in different environments, mainly in the hospital rooms, and were both individual and by groups. As expected, in the post-COVID period, there was an increase of individual sessions.

In the majority of cases, patients have been enrolled to MT based on the psychologist's assessment (13/14 centers); however, in some cases, the caring medical doctor or the nurse selected patients; in 8 cases, patients have been sent to MT based on equipe assessment. This is a positive result, and it would be desirable for music therapist to be always included in the multidisciplinary team, in order to share aims from the beginning of the cure and systematically evaluate progress taking care of patients.

Indeed, the survey reveals that evaluation seems to be done primarily using self-made tools by music therapist. The evaluation of MT interventions must be carried out with the highest possible qualitative and quantitative standards, but evidence-based research and real-world evidence should also be used. For this reason, unlike other music-based interventions, music therapist must work in synergy in a multidisciplinary team, which requires a clear, well-organized interdisciplinary and interprofessional approach.

Published literature suggests that music therapy is considered helpful taking care of children and adults in many contexts, particularly in young patients with cancer and their families. MT is one of the non-pharmacological interventions that has been increasingly indicated in psycho-oncological support for its benefits in addressing symptoms such as anxiety, low mood, and pain [16].

Studies with children undergoing autologous stem-cell transplantation have showed that patients who received MT experienced significantly lower disturbances in mood, decrease of pain perception, and an overall positive effect on depression and anxiety [7].

MT can be considered an excellent support for anesthesia as a complementary/non-pharmacological approach to reduce pre-operative anxiety in children undergoing invasive procedure [6, 17].

Studies have explored how MT can contribute to psychophysiological changes [18] and improve quality of life in children receiving palliative care [19].

In a recent worldwide survey among professional members of organizations affiliated with the World Federation of Music Therapy ($n = 2495$), about half of the respondents reported working with children/preteens (50.6%) and teens

(45.7%), whereas 38.2% indicated working with infant/children [20]. In particular, in a US survey of music therapists working in pediatric medical settings, most respondents (76%) declared providing services to hematology/oncology patients and their families [21]. Our survey demonstrates that MT is active in daily practice also in some Italian Pediatric Oncology and Hematology Centres and is likely considered a helpful complementary and alternative therapy.

In several countries, music therapy services are well-established in the field of pediatric oncology, and some treatment guidelines include creative art therapies for this specific client population [5, 20].

In a recent review, authors found that music therapy interventions delivered by a trained music therapist led to consistent results across studies for QoL and fatigue, and this was not the case for other music-based interventions [22]. We believe that promoting MT in pediatric oncology should be a gold standard of holistic approach to pediatric patients and their family.

Among the 15 psychosocial standards (PPS) of the Psychosocial Standards of Care project, which address a wide range of needs for patients and families across the cancer continuum [23, 24], nine standards have been identified that they are implemented through music therapy intervention (PSS 1, 4, 6, 7, 8, 9, 10, 13, 15).

The presence of a certified music therapists can help to improve the standards through research and evidence-based interventions, thanks to an innovative and tailored care and ongoing assessment to provide the best care when and where it is mostly needed [25].

The best practice of MT in pediatric oncology requires communication and collaboration among multidisciplinary care team using a model of family-centered care that actively involves parents/caregivers in assessment, treatment planning, and care delivery.

However, it is important to note that to exploit the potential of music therapy in an optimal way, specialized academic and clinical training and careful selection of intervention techniques to fit the needs of the client are essential [25].

Conclusions

MT should be implemented involving more AIEOP centers, and this survey could be the starting platform to compare and discuss different experience and to widen the knowledge and networking for a more qualified assistance to pediatric oncology patients and to improve quality of care.

Particular attention should be paid to rearrangements of accesses due to COVID pandemia: although the majority of centers did not abrogate MT interventions, judgment about

limitation should be carefully taken since MT helps children and even more adolescents in their fight against cancer.

Limitations

The applications of MT are different in AIEOP centers. However, this could be just guessed based on this survey, since our objective was to explore the status of MT in Italy. A more detailed questionnaire should explore different applications of MT in pediatric oncology in Italy.

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Collaborators

- Angelica Barone, MD, Pediatric Onco-Hematology Unit, Pediatric Clinic, Pietro Barilla Children's Hospital, University of Parma, Parma, Italy
- Letizia Brescia, MD, Hemato-Oncology Unit, SS. Annunziata Hospital, 74100, Taranto, Italy
- Francesca Carraro, MD, Pediatric Onco-Hematology, Stem Cell Transplantation and Cellular Therapy Division, AOU Città della Salute e della Scienza, Regina Margherita Children Hospital, Turin, Italy
- Monica Cellini, MD, Pediatric Oncology-Hematology Unit, Department of Mother and Child, Azienda Ospedaliero Universitaria Modena, Modena, Italy
- Maura Faraci, MD, Dipartimento di Scienze Pediatriche Generali e Specialistiche - Polo di Emato-Oncologia- Trapianto IRCCS Istituto Giannina Gaslini - Genova
- Nagua Giurici, MD, Institute for Maternal and Child Health IRCCS Burlo Garofolo Trieste
- Milena La Spina, MD, Pediatric Hematology and Oncology Unit-AOU Policlinico "Rodolico-San Marco", University of Catania, Catania, Italy
- Laura Lauti, MD, U.O. Oncoematologia Pediatrica AOUP S. Chiara Pisa
- Cristina Meazza, MD, Pediatric Oncology Unit, IRCCS INT Milan, Italy
- Maria Grazia Petris, MD, Clinic of Pediatric Hemato-Oncology, Department of Women's and Children's Health, University Hospital of Padova, Italy
- Elena Soncini, MD, Pediatric Oncohematology and Bone Marrow Transplant Unit, Children's Hospital, Spedali Civili, 25100, Brescia, Italy

Authors' contributions F.G.: Conceptualization, investigation, methodology, writing—original draft. P.M.: Conceptualization, supervision. C.R.: Methodology, supervision. F.B.: Collecting data and final approval of the version to be published. L.B.: Collecting data and final approval of the version to be published. P.C.: Collecting data and final approval of the version to be published. A.C.: Collecting data and final

approval of the version to be published. M.R.D.: Collecting data and final approval of the version to be published. R.D.: Collecting data and final approval of the version to be published. M.M.: Collecting data and final approval of the version to be published. R.M.: Collecting data and final approval of the version to be published. D.O.: Collecting data and final approval of the version to be published. K.P.: Collecting data and final approval of the version to be published. S.R.: Collecting data and final approval of the version to be published. F.T.: Collecting data and final approval of the version to be published. D.Z.: Collecting data and final approval of the version to be published. M.D.L.: Statistical analysis. N.S.: Writing review and editing. C.C.: Writing review and editing.

Data availability It was not applicable deposit data in a public repository.

Declarations

Ethics approval Not applicable.

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Conflict of interest The authors declare no competing interests.

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Authors and Affiliations

Filippo Giordano¹ · Paola Muggeo² · Chiara Rutigliano² · Federica Barzaghi³ · Laura Battisti⁴ · Paola Coccia⁵ · Antonella Colombini⁶ · Maria Rosaria D'Amico⁷ · Raffaella De Santis⁸ · Maurizio Mascarin⁹ · Rossella Mura¹⁰ · Daniela Onofrillo¹¹ · Katia Perruccio¹² · Simona Rinieri¹³ · Francesca Trevisan¹⁴ · Daniele Zama¹⁵ · Ottavio Ziino¹⁶ · Marica De Lucia¹⁷ · Nicola Santoro² · Simone Cesaro¹⁸

¹ Department of Emergency and Organ Transplants, University of Bari Aldo Moro, Piazza G. Cesare 11, 70124 Bari, Italy

² Department of Pediatric Oncology and Hematology, University Hospital of Policlinico, Bari, Italy

³ Pediatric Immunohematology and Bone Marrow Transplantation Unit, IRCCS San Raffaele Hospital, Via Olgettina 60, 20132 Milan, Italy

⁴ Division of Pediatric Hematology Oncology, Pediatric Central Hospital of Bolzano, Bolzano, Italy

⁵ Pediatric Hemato-Oncology Unit, Hospital Salesi, Azienda Ospedali Riuniti Ancona, Ancona, Italy

⁶ Pediatric Hematology-Oncology Unit, Department of Pediatrics, University of Milano-Bicocca, MBBM Foundation/ASST Monza, Monza, Italy

⁷ Pediatric Hematology-Oncology Unit, AORN Santobono-Pausilipon, Naples, Italy

⁸ Hemato-Oncology Unit, Department of Pediatrics, 'Casa Sollievo Della Sofferenza' Hospital, San Giovanni Rotondo, Italy

⁹ Adolescent and Young Adult Oncology and Pediatric Radiotherapy Unit, CRO-Centro Di Riferimento Oncologico Di Aviano, IRCCS, Aviano, Italy

¹⁰ Pediatric Oncology Unit, Azienda Ospedaliera Brotzu, Cagliari, Italy

¹¹ Hematology-Oncology Department, Pediatric Hematology and Oncology Unit, Santo Spirito Hospital, Pescara, Italy

¹² Pediatric Hematology Oncology, Azienda Ospedaliera Universitaria, Ospedale Santa Maria Della Misericordia, Perugia, Italy

¹³ Pediatric Onco-Hematology Unit, Sant'Anna University Hospital, Ferrara, Italy

¹⁴ Pediatric Onco-Hematology Unit - AOU Meyer Firenze, Florence, Italy

¹⁵ Department of Pediatrics, Pediatric Oncology and Haematology Unit "Lalla Seragnoli", Sant' Orsola Malpighi Hospital, University of Bologna, Bologna, Italy

¹⁶ Department of Pediatric Hemato-Oncology, ARNAS Ospedali Civico, G. Di Cristina, Palermo, Italy

¹⁷ Department of Biology, University Federico II of Naples, Naples, Italy

¹⁸ Pediatric Hematology Oncology, Department of Mother and Child, Azienda Ospedaliera Universitaria Integrata Verona, Verona, Italy