

Palliative Care and Hospice Research Updates from 2022-2023

Patrick White MD, PhD, HMDC, FACP, FAAHPM
Chief Medical Officer, BJC Home Care
Stokes Family Endowed Chair of Palliative Medicine
Chief Division of Palliative Medicine,
Washington University School of Medicine

Disclosure: *White, Patrick*, MD, PhD

Patrick White M.D. has financial interests to disclose.
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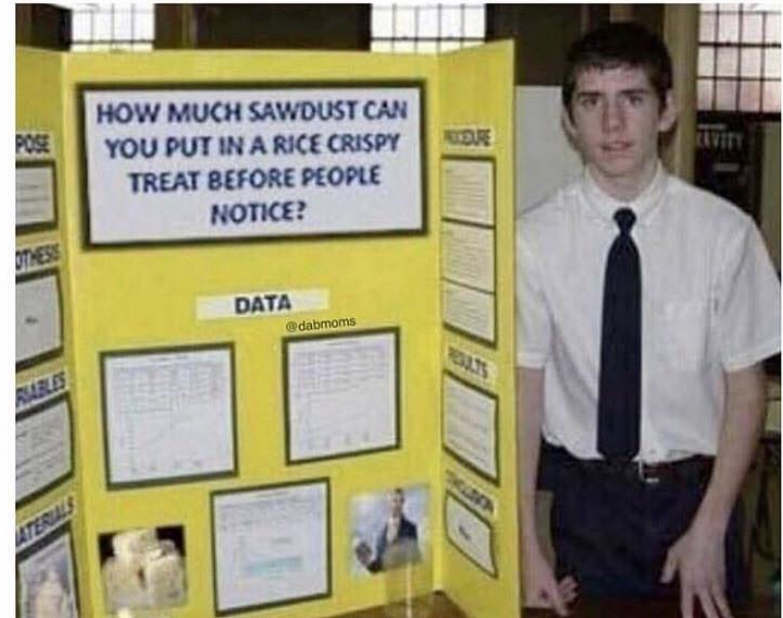
N/A

Speakers Bureau / Honoraria

N/A

Objectives

- Identify the most clinically relevant PC/hospice research studies conducted in 2023-2023
- Describe ways these studies could be applied to improve the way you deliver palliative and hospice care.
- Highlight work done in Missouri especially with MHPCA



Methods

- Summarize the key scientific presentations of the year and focus only on either clinically relevant points or information for promoting palliative care or hospice care
 - AAHPM “State of the Science”
 - “PC-FACS: A Year in Review”
 - “Speed Dating with Pharmacists”
 - Missouri research studies
- Please credit everything to the original study authors and PC-FACS crew

Clowns for Kids with Serious Illness: Creepy or Comforting?



Effectiveness of hospital clowns for symptom management in paediatrics: systematic review of randomised and non-randomised controlled trials

RESEARCH

OPEN ACCESS

Check for updates

Effectiveness of hospital clowns for symptom management in paediatrics: systematic review of randomised and non-randomised controlled trials

Luís Carlos Lopes-Júnior,¹ Emília Bomfim,² Karin Olson,³ Eliane Tatsch Neves,⁴ Denise Sayuri Calheiros Silveira,⁵ Michelle Darezzi Rodrigues Nunes,⁶ Lucila Castanheira Nascimento,⁷ Gabriela Pereira-da-Silva,⁷ Regina Aparecida Garcia Lima⁷

For numbered affiliations see end of the article.

Correspondence to: LCLopes-Junior
lopes.lc@gmail.com
(ORCID 0000-0002-2424-6510)
Additional material is published online only. To view please visit the journal online.

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Accepted: 13 October 2020

ABSTRACT

OBJECTIVE

To evaluate evidence from randomised controlled trials and non-randomised controlled trials on the effectiveness of hospital clowns for a range of symptom clusters in children and adolescents admitted to hospital with acute and chronic conditions.

DESIGN

Systematic review of randomised and non-randomised controlled trials.

DATA SOURCES

Medline, ISI of Knowledge, Cochrane Central Register of Controlled Trials, Science Direct, Scopus, American Psychological Association PsycINFO, Cumulative Index to Nursing and Allied Health Literature, and Latin American and Caribbean Health Sciences Literature.

STUDY SELECTION

Randomised and non-randomised controlled trials were peer reviewed using the following eligibility criteria: children and adolescents who were admitted to hospital for acute conditions or chronic disorders, studies comparing use of hospital clowns with standard care, and studies evaluating the effect of hospital clowns on symptom management of inpatient children and adolescents as a primary outcome.

DATA EXTRACTION AND SYNTHESIS

Two investigators independently screened studies, extracted data, and appraised the risk of bias. Methodological appraisal was assessed by two investigators independently using the Jadad scale, the revised Cochrane risk-of-bias tool for randomised

controlled trials (RoB 2), and the risk of bias in non-randomised studies (ROBINS-I) tool for non-randomised controlled trials.

RESULTS

24 studies (n=1612) met the inclusion criteria for data extraction and analysis. Most studies were randomised controlled trials (n=13). Anxiety was the most frequently analysed symptom (n=13), followed by pain (n=9), psychological and emotional responses and perceived wellbeing (n=4), stress (n=4), cancer related fatigue (n=3), and crying (n=2). Five studies used biomarkers, mainly cortisol, to assess stress or fatigue outcome following hospital clowns. Most of the randomised controlled trials (n=11; 85%) were rated as showing some concerns, and two trials were rated with a high risk of bias. Most non-randomised controlled trials (n=6; 55%) were rated with a moderate risk of bias according to ROBINS-I tool. Studies showed that children and adolescents who were in the presence of hospital clowns, either with or without a parent present, reported significantly less anxiety during a range of medical procedures, as well as improved psychological adjustment (P<0.05). Three studies that evaluated chronic conditions showed favourable results for the intervention of hospital clowns with significant reduction in stress, fatigue, pain, and distress (P<0.05).

CONCLUSIONS

These findings suggest that the presence of hospital clowns during medical procedures, induction of anaesthesia in the preoperative room, and as part of routine care for chronic conditions might be a beneficial strategy to manage some symptom clusters. Furthermore, hospital clowns might help improve psychological wellbeing in admitted children and adolescents with acute and chronic disorders, compared with those who received only standard care.

SYSTEMATIC REVIEW REGISTRATION

PROSPERO CRD42018107099.

Introduction

The scientific literature is consistent in validating wellbeing, self-confidence, and psychological

WHAT IS ALREADY KNOWN ON THIS TOPIC

Hospital clown intervention has been shown to have a positive effect on paediatric patient outcomes for acute conditions and during medical procedures

WHAT THIS STUDY ADDS

This systematic review included 24 studies with 1612 children and adolescents. Results indicated that interaction with hospital clowns during medical procedures, during induction of anaesthesia, in the preoperative room,

Lopes-Júnior LC, Bomfim E, Olson K, Neves ET, Silveira DSC, Nunes MDR, Nascimento LC, Pereira-da-Silva G, Lima RAG. Effectiveness of hospital clowns for symptom management in paediatrics: systematic review of randomised and non-randomised controlled trials. *BMJ*. 2020 Dec

16;371:m4290

Effectiveness of hospital clowns for symptom management in paediatrics: systematic review of randomised and non-randomised controlled trials

What They Did

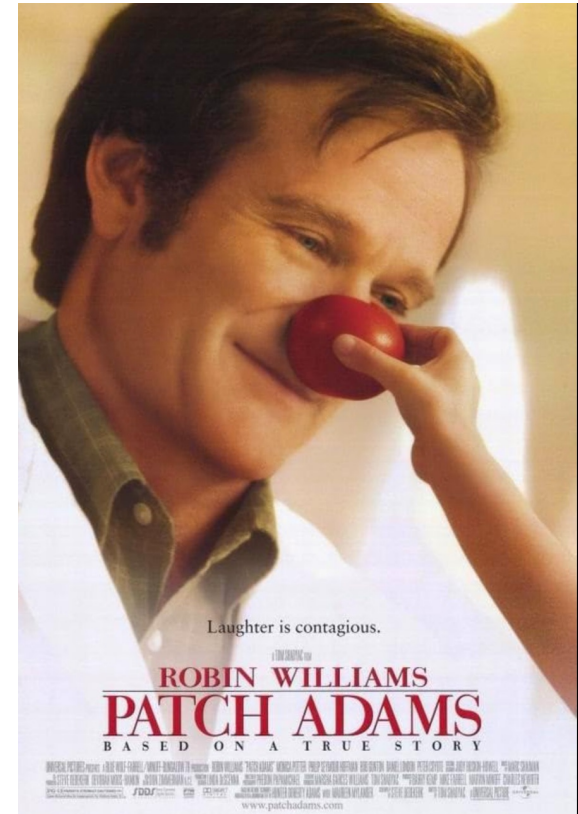
- Randomised and non-randomised controlled trials were peer reviewed comparing use of hospital clowns with standard care, and studies evaluating the effect of hospital clowns on symptom management of inpatient children.
- 4 studies (n=1612) met the inclusion criteria for data extraction and analysis. Most studies were randomised controlled trials (n=13). Anxiety was the most frequently analysed symptom (n=13), followed by pain (n=9), psychological and emotional responses and perceived wellbeing (n=4), stress (n=4), cancer related fatigue (n=3), and crying (n=2).

Why It Matters

- Who doesn't either loved or feared clowns? I have wondered this ever since I first watched Patch Adams.
- Studies showed that children and adolescents who were in the presence of hospital clowns reported significantly less anxiety during a range of medical procedures, as well as improved psychological adjustment ($P < 0.05$).
- Three studies showed favorable results for the intervention of hospital clowns with a significant reduction in stress, fatigue, pain, and distress ($P < 0.05$).

Conclusion

- Hospital clowns during medical procedures, induction of anesthesia in the preoperative room, and as part of routine care for chronic conditions might be a beneficial strategy to manage some symptom clusters. Furthermore, hospital clowns might help improve psychological wellbeing.



Is there a Safe Way to Reduce Vital Sign Checks in Hospitalized Patients and Help Them Sleep Better?



Effectiveness of an Analytic-Based Intervention for Reducing Sleep Interruption in Hospitalized Patients

JAMA Network

Effectiveness of an Analytics-Based Intervention for Reducing Sleep Interruption in Hospitalized Patients

A Randomized Clinical Trial

[Nader Najafi, MD](#),¹ [Andrew Robinson, BS](#),² [Mark J. Pletcher, MD, MPH](#),¹ and [Sajan Patel, MD](#)¹

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See commentary "[A Good Night's Sleep in the Hospital](#)," in *JAMA Intern Med*, 34962510.

Associated Data

▸ [Supplementary Materials](#)

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Key Points

[Go to:](#) ▸

Question

Can a clinical decision support tool, powered by a real-time prediction algorithm, help reduce delirium incidence and identify hospitalized patients who can safely forgo nighttime vital sign checks?

Najafi N, Robinson A, Pletcher MJ, Patel S. Effectiveness of an Analytics-Based Intervention for Reducing Sleep Interruption in Hospitalized Patients: A Randomized Clinical Trial. *JAMA Intern Med*. 2022 Feb 1;182(2):172-177.

Effectiveness of an Analytic-Based Intervention for Reducing Sleep Interruption in Hospitalized Patients

What They Did

- A randomized clinical trial, with inpatient encounters randomized 1:1 to intervention vs usual care, was conducted in 2019 with floor 1699 patients.
- A notification informed the physician if the patient had a high likelihood of nighttime vital signs within the reference ranges based on a logistic regression model that used real-time patient data as input.
- The notification provided the physician an opportunity to discontinue nighttime vital signs, dismiss the notification for 1 hour, or dismiss the notification for that day.
- The primary outcome was delirium.

Why It Matters

- They were able to reduce the number of nighttime vital sign checks (0.97 [0.95] vs 1.41 [0.86]; $P < .001$) with no significant increase in intensive care unit transfers or code blue alarms.
- The incidence of delirium was not significantly reduced (108 [11%] vs 123 [13%]; $P = .32$).

Conclusion

- A real-time prediction algorithm embedded within a clinical decision support tool in the electronic health record can help physicians identify clinically stable patients who can forgo routine vital sign checks, safely giving them greater opportunity to sleep although not necessarily reducing delirium.



Does Watching Disney Movies During Chemotherapy Administration Impact Psycho-social Health?



Effect of Viewing Disney Movies During Chemotherapy on Self-Reported Quality of Life Among Patients With Gynecologic Cancer

JAMA
Network | **Open**



Original Investigation | Obstetrics and Gynecology

Effect of Viewing Disney Movies During Chemotherapy on Self-Reported Quality of Life Among Patients With Gynecologic Cancer A Randomized Clinical Trial

Sophie Pils, MD, Johannes Ott, MD, Alexander Reinhaller, MD, Enikoe Steiner, Stephanie Springer, MD, Robin Ristl, PhD

Abstract

IMPORTANCE In addition to treatment efficacy, evaluation of adverse effects and quality of life assessments have become increasingly relevant in oncology.

OBJECTIVE To evaluate the association of watching Disney movies during chemotherapy with emotional and social functioning and fatigue status.

DESIGN, SETTING, AND PARTICIPANTS This randomized clinical trial was performed from December 2017 to December 2018 at a cancer referral center in Vienna, Austria. A consecutive sample of women with gynecologic cancers was recruited through July 2018. Inclusion criteria included age older than 18 years, written informed consent, and planned 6 cycles of chemotherapy with either carboplatin and paclitaxel or carboplatin and pegylated liposomal doxorubicin. Exclusion criteria were inadequate knowledge of the German language or receipt of other chemotherapy regimens. Data analysis was performed from February 2019 to April 2019.

INTERVENTION Participants were either shown Disney movies or not during 6 cycles of chemotherapy. Before and after every cycle, they completed standardized questionnaires from the European Organisation for Research and Treatment of Cancer (EORTC).

MAIN OUTCOMES AND MEASURES Primary outcomes were change of quality of life, as defined by the EORTC Core-30 (version 3) questionnaire, and fatigue, as defined by the EORTC Quality of Life Questionnaire Fatigue, during 6 cycles of chemotherapy.

RESULTS Fifty-six women entered the study, and 50 completed it, including 25 women in the Disney group (mean [SD] age, 59 [12] years) and 25 women in the control group (mean [SD] age, 62 [8] years). In the course of 6 cycles of chemotherapy, patients in the Disney group felt less tense and worried less than patients in the control group according to their responses to the questions about emotional functioning (mean [SD] score, 86.9 [14.3] vs 66.3 [27.2]; maximum test $P = .02$). Furthermore, watching Disney movies was associated with less encroachment on patients' family life and social activities, as evaluated by the social functioning questions (mean [SD] score, 86.1 [23.0] vs 63.6 [33.6]; maximum test $P = .01$). Moreover, this intervention led to fewer fatigue symptoms (mean [SD] score, 85.5 [13.6] vs 66.4 [22.5]; maximum test $P = .01$). Perceived global health status was not associated with watching Disney movies (mean [SD] score, 75.9 [17.6] vs 61.0 [25.1]; maximum test $P = .16$).

CONCLUSIONS AND RELEVANCE These findings suggest that watching Disney movies during chemotherapy may be associated with improvements in emotional functioning, social functioning,

Key Points

Question Is watching Disney movies during chemotherapy associated with improved quality of life among patients with gynecologic cancer?

Findings In this randomized clinical trial that included 56 patients, watching Disney movies during 6 cycles of chemotherapy was associated with differences in emotional functioning, social functioning, and fatigue status scores compared with controls.

Meaning Watching Disney movies during chemotherapy may be associated with improvements in quality of life in patients with gynecologic cancer.

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Pils S, Ott J, Reinhaller A, Steiner E, Springer S, Ristl R. Effect of Viewing Disney Movies During Chemotherapy on Self-Reported Quality of Life Among Patients With Gynecologic Cancer: A Randomized Clinical Trial. JAMA Netw Open. 2020;3(5):e204568.

Effect of Viewing Disney Movies During Chemotherapy on Self-Reported Quality of Life Among Patients With Gynecologic Cancer

What They Did

- This randomized clinical trial was performed in 2017 at a cancer referral center in Vienna, Austria in a consecutive sample of women with gynecologic cancers who had 6 cycles of chemotherapy scheduled.
- Participants were either shown Disney movies or not during chemotherapy.
- Primary outcomes were change of quality of life, as defined by the EORTC Core-30 (version 3) questionnaire, and fatigue, as defined by the EORTC Quality of Life Questionnaire Fatigue, during 6 cycles of chemotherapy.

Why It Matters

- Patients in the Disney group felt less tense and worried less than patients in the control group (mean [SD] score, 86.9 [14.3] vs 66.3 [27.2]; maximum test $P = .02$).
- Watching Disney movies was associated with higher social functioning questions (mean [SD] score, 86.1 [23.0] vs 63.6 [33.6]).
- Moreover, this intervention led to fewer fatigue symptoms (mean [SD] score, 85.5 [13.6] vs 66.4 [22.5]; maximum test $P = .01$) although no change in global health

Conclusion

- These findings suggest that watching Disney movies during chemotherapy may be associated with improvements in emotional functioning, social functioning, and fatigue status in patients with gynecologic cancers but not global health status. We need Disney in the chemo suites!



Are there any major breakthroughs coming to help support patients with neuropathic pain?



The σ_1 Receptor and the HINT1 Protein Control $\alpha 2\delta 1$ Binding to Glutamate NMDA Receptors: Implications in Neuropathic Pain

Article

The σ_1 Receptor and the HINT1 Protein Control $\alpha 2\delta 1$ Binding to Glutamate NMDA Receptors: Implications in Neuropathic Pain

María Rodríguez-Muñoz^{1,†}, Elsa Cortés-Montero^{1,†}, Yara Onetti¹, Pilar Sánchez-Blázquez¹ and Javier Garzón-Niño^{2,*}

¹ Neuropharmacology, Department of Translational Neuroscience, Cajal Institute, CSIC, 28002 Madrid, Spain; mrodriguez@cajal.csic.es (M.R.-M.); elsa.cortes@cajal.csic.es (E.C.-M.); yara.onetti@ub.edu (Y.O.); psb@cajal.csic.es (P.S.-B.)

² Instituto Cajal, Consejo Superior de Investigaciones Científicas (CSIC), Doctor Arce 37, 28002 Madrid, Spain

* Correspondence: jgarzon@cajal.csic.es; Tel: +34-915854733; Fax: +34-915854754

† These authors contributed equally to this work.

Abstract: Nerve injury produces neuropathic pain through the binding of $\alpha 2\delta 1$ proteins to glutamate *N*-methyl-D-aspartate receptors (NMDARs). Notably, mice with a targeted deletion of the sigma 1 receptor ($\sigma 1R$) gene do not develop neuropathy, whereas mice lacking the histidine triad nucleotide-binding protein 1 (*Hint1*) gene exhibit exacerbated allodynia. $\sigma 1R$ antagonists more effectively diminish neuropathic pain of spinal origin when administered by intracerebroventricular injection than systemically. Thus, in mice subjected to unilateral sciatic nerve chronic constriction injury (CCI), we studied the participation of $\sigma 1R$ s and HINT1 proteins in the formation of $\alpha 2\delta 1$ -NMDAR complexes within the supraspinal periaqueductal gray (PAG). We found that $\delta 1$ peptides required $\sigma 1R$ s in order to interact with the NMDAR NR1 variant that contains the cytosolic C1 segment. $\sigma 1R$ antagonists or low calcium levels provoke the dissociation of $\sigma 1R$ -NR1 C1 dimers, while they barely affect the integrity of $\delta 1$ - $\sigma 1R$ -NR1 C1 trimers. However, HINT1 does remove $\delta 1$ peptides from the trimer, thereby facilitating the subsequent dissociation of $\sigma 1R$ s from NMDARs. In $\sigma 1R^{-/-}$ mice, CCI does not promote the formation of NMDAR- $\alpha 2\delta 1$ complexes and allodynia does not develop. The levels of $\alpha 2\delta 1$ - $\sigma 1R$ -NMDAR complexes increase in HINT1^{-/-} mice and after inducing CCI, degradation of $\alpha 2\delta 1$ proteins is observed. Notably, $\sigma 1R$ antagonists but not gabapentinoids alleviate neuropathic pain in these mice. During severe neuropathy, the metabolism of $\alpha 2\delta 1$ proteins may account for the failure of many patients to respond to gabapentinoids. Therefore, $\sigma 1R$ s promote and HINT1 proteins hinder the formation $\alpha 2\delta 1$ -NMDAR complexes in the PAG, and hence, the appearance of mechanical allodynia depends on the interplay between these proteins.

Keywords: mechanical allodynia; sigma receptor type 1; HINT1 protein



Citation: Rodríguez-Muñoz, M.; Cortés-Montero, E.; Onetti, Y.; Sánchez-Blázquez, P.; Garzón-Niño, J. The σ_1 Receptor and the HINT1 Protein Control $\alpha 2\delta 1$ Binding to Glutamate NMDA Receptors: Implications in Neuropathic Pain. *Biomolecules* **2021**, *11*, 1681. <https://doi.org/10.3390/biom11111681>

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1. Introduction

Persistent anomalous activation of glutamate *N*-methyl-D-aspartate receptors (NMDARs) typically accompanies different types of neuropathic pain, as characterized by tactile allodynia and hyperalgesia [1]. NMDARs are under allosteric regulation of different endogenous and exogenous molecules, of which the alpha2delta1 ($\alpha 2\delta 1$) protein plays a decisive role in the neuropathy promoted by the over activation of NMDARs [2]. Proteins of the $\alpha 2\delta$ family, $\alpha 2\delta 1$, $\alpha 2\delta 2$, $\alpha 2\delta 3$, and $\alpha 2\delta 4$ are derived from distinct genes (*Cacna2d1-4*) with different sequences. These $\alpha 2\delta$ genes encode a single precursor protein, which is post-translationally processed into two proteins in the endoplasmic reticulum (ER): a larger N terminal $\alpha 2$ protein that is essentially extracellular; and the smaller δ peptide in the

Rodríguez-Muñoz M, Cortés-Montero E, Onetti Y, Sánchez-Blázquez P, Garzón-Niño J. The σ_1 Receptor and the HINT1 Protein Control $\alpha 2\delta 1$ Binding to Glutamate NMDA Receptors: Implications in Neuropathic Pain. *Biomolecules*. 2021 Nov 12;11(11):1681.

The σ_1 Receptor and the HINT1 Protein Control $\alpha_2\delta_1$ Binding to Glutamate NMDA Receptors: Implications in Neuropathic Pain

What They Did

- Notably, mice with a targeted deletion of the sigma 1 receptor (σ_1R) gene do not develop neuropathy, whereas mice lacking the histidine triad nucleotide-binding protein 1 (*Hint1*) gene exhibit exacerbated allodynia.
- They found that δ_1 peptides required σ_1R s in order to interact with the NMDAR NR1 variant that contains the cytosolic C1 segment. σ_1R antagonists or low calcium levels provoke the dissociation of σ_1R -NR1 C1 dimers, while they barely affect the integrity of δ_1 - σ_1R -NR1 C1 trimers.

Why It Matters

- Nerve injury produces neuropathic pain through the binding of $\alpha_2\delta_1$ proteins to glutamate *N*-methyl-D-aspartate receptors (NMDARs).
- During severe neuropathy, the metabolism of $\alpha_2\delta_1$ proteins may account for the failure of many patients to respond to gabapentinoids.
- Therefore, σ_1R s promote and HINT1 proteins hinder the formation $\alpha_2\delta_1$ -NMDAR complexes in the PAG, and hence, the appearance of mechanical allodynia depends on the interplay between these proteins.

Conclusion

- Neuropathic pain can be one of the most challenging symptoms to control. Understanding the role of σ 1R, HINT1, and α 2 δ 1 in NMDA-receptor complex function can guide the development of new therapeutic agents for neuropathic pain and offers hope to patients with complex pain neuropathic pain syndromes.



What Impact Does Access to Home Care Services Have on Keeping Patients at Home for End-of-Life?



Association of the Frequency of In-Home Care Services Utilization and the Probability of In-Home Death

JAMA Network | **Open**



Original Investigation | Geriatrics

Association of the Frequency of In-Home Care Services Utilization and the Probability of In-Home Death

Kazuhiro Abe, PhD; Ichiro Kawachi, PhD; Taeko Watanabe, PhD; Nanako Tamiya, PhD

Abstract

IMPORTANCE The provision of end-of-life care is an important policy issue associated with population aging around the world. Yet it is unclear whether the provision of in-home care services can allow patients the option of in-home death at end of life.

OBJECTIVE To assess whether the frequent use of in-home care services can assist recipients to stay at home at the end of life.

DESIGN, SETTING, AND PARTICIPANTS This cohort study of older adults in Japan's long-term care insurance system used national claims data. Participants were long-term care insurance beneficiaries aged 65 years or over who died in 2015, excluding those who died due to external causes such as accidents. Data analyses were conducted from October to December 2020.

EXPOSURES Mean days of in-home care service used per week from the first day of the month before the month of death to the date of death.

MAIN OUTCOMES AND MEASURES Primary outcome was whether the older person died at home (or not). To address lack of information on individual preference for place of death, we used an instrumental variable estimation with the full-time equivalent number of care workers providing in-home care services per older population at the municipality level in 2014.

RESULTS Of the 572 059 decedents included in the study, 314 743 (55.0%) were women (median [IQR] age, 87 [81-91] years). The proportion of in-home deaths was 10.5% (60 175 decedents), and 81 675 decedents (14.3%) used in-home care services at least once prior to their death. Ordinary least squares and 2-stage least squares analyses both indicated that more frequent use of in-home care was associated with a higher probability of in-home deaths (ordinary least squares estimate, 5.0 percentage points; 95% CI, 4.9-5.1 points vs 2-stage least squares estimate, 3.6 percentage points; 95% CI, 2.3-4.9 points).

CONCLUSIONS AND RELEVANCE This retrospective cohort study using an instrumental variable approach demonstrated that more frequent use of in-home care services at the end of life was associated with a higher probability of in-home death. One policy implication of these results is that in order to meet the end-of-life preferences of patients, it is not only necessary to promote the provision of medical services at home but also to ensure an adequate supply of care workers.

Key Points

Question Do in-home care services enable recipients to stay home at the end of life?

Findings In this cohort study that examines 572 059 deaths among older adults using long-term care services in Japan, each day of increase in the use of in-home care service at the end of life was associated with a 3.6 percentage point increased probability of in-home death.

Meaning One policy implication of these results is that in order to meet the end-of-life preferences of patients, it is not only necessary to promote the provision of medical services at home but also to ensure an adequate supply of care workers.

+ [Invited Commentary](#)

+ [Supplemental content](#)

Author affiliations and article information are listed at the end of this article.

Abe K, Kawachi I, Watanabe T, Tamiya N. Association of the Frequency of In-Home Care Services Utilization and the Probability of In-Home Death. JAMA Netw Open. 2021 Nov 1;4(11):e2132787

Association of the Frequency of In-Home Care Services Utilization and the Probability of In-Home Death

What They Did

- Although the majority of Japanese prefer in-home death, only 13% (2017 data) experience in-home death versus Canada where 60% do, England or the United States with 31%.
- They examined deaths in Japan where a higher proportion of deaths occurs at the hospital.
- Participants were long-term care insurance beneficiaries aged 65 years or over who died in 2015, excluding those who died due to external causes such as accidents.

Why It Matters

- Of the 572 059 the proportion of in-home deaths was 10.5% (60 175 decedents), and 81 675 decedents (14.3%) used in-home care services at least once prior to their death.
- More frequent use of in-home care was associated with a higher probability of in-home deaths (ordinary least squares estimate, 5.0 percentage points; 95% CI, 4.9-5.1 points vs 2-stage least squares estimate, 3.6 percentage points; 95% CI, 2.3-4.9 points).

Conclusion

- This Japanese retrospective cohort study demonstrated that more frequent use of in-home care services at the end of life was associated with a higher probability of in-home death.
- One policy implication of these results is that in order to meet the end-of-life preferences of patients we need to ensure an adequate supply of care workers.



What Information Should We Give Patients with Advanced Cancer Starting High Flow Oxygen: Does It Actually Work?



High Flow Nasal Cannula in Patients With Cancer at the End of Life

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Journal of Pain and Symptom Management e369

Clinical Note

High Flow Nasal Cannula in Patients With Cancer at the End of Life

 Check for updates

Patricia S. Bramati, MD, Ahsan Azhar, MD, Rida Khan, MD, Margarita Tovbin, NP, Alex Cooper, APRN, Imelda Pangemanan, NP, Bryan Fellman, MS, and Eduardo Bruera, MD

Department of Palliative Care (P.S.B., A.A., R.K., M.T., A.C., J.P., E.B.), Rehabilitation and Integrative Medicine, Houston, Texas, USA; Department of Biostatistics (B.F.), The University of Texas MD Anderson Cancer Center, Houston, Texas, USA

Abstract

Context. High flow nasal cannula (HFNC) is frequently used to manage dyspnea in patients with cancer near the end of life. Because HFNC is restricted to the in-patient setting, patients on HFNC need to be liberated from it to be discharged from the hospital.

Objectives. The purpose of this study is to assess the rate of successful liberation from HFNC in a palliative and supportive care unit (PSCU).

Methods. The study is a retrospective chart review of all 374 adult patients with cancer on HFNC admitted to a palliative and supportive care unit at a tertiary medical center from January 1, 2018 to December 31, 2020. We determined the proportion of patients who were liberated from HFNC (by day three and overall) and the proportion of patients discharged alive.

Results. The mean age of the patients was 64, 54% were male and 73% were white. Only 16% (95% CI: 13–20) of the patients were discharged alive. Liberation from HFNC by day three and overall was accomplished in 23% and 25% of the patients respectively. Comparing the patients who could be liberated from HFNC vs. those who could not by day three, 38% vs. 9% were discharged alive respectively; and overall, 62% vs. 1% respectively ($P < 0.001$ in both cases).

Conclusion. Only a minority of patients with cancer at the end of life can be liberated from HFNC, and only a minority are discharged alive. This information is important when discussing goals of care with patients and their families before initiating HFNC. J Pain Symptom Manage 2023;65:e369–e373. © 2023 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Key Words

Cancer, dyspnea, high flow nasal cannula, hospice, outcome, palliative care

Key message

High Flow Nasal Cannula, frequently used to manage dyspnea in oncologic patients near the end of life, could be discontinued in only a quarter of these patients and only 16% were discharged alive from the hospital. This information is important when discussing goals of care with patients and their families.

Introduction

Dyspnea is a frequent symptom among hospitalized patients with cancer¹ and its presence, particularly at

rest, portends a dismal prognosis.² In patients with terminal cancer, about 70% experience dyspnea during the final six weeks of life, which worsens in the last two weeks.³ The current approach to managing dyspnea entails treating any reversible causes and taking supportive actions to lessen the sensation of shortness of breath with opioids and oxygen.^{4,5}

High flow nasal cannula (HFNC), also known as high flow nasal oxygen therapy (HFNT),^{6,7} which can deliver up to 80 liters per minute of the heated and humidified nitrogen-oxygen mix,⁸ has become the standard first-line treatment for acute hypoxemic

P. S. B. and A. A. contributed equally to this paper as co-first authors.

Holcombe Boulevard, Unit 1414, Houston, TX 77030, USA.
E-mail: ebruera@mdanderson.org

Bramati PS, Azhar A, Khan R, Tovbin M, Cooper A, Pangemanan I, Fellman B, Bruera E. High Flow Nasal Cannula in Patients With Cancer at the End of Life. J Pain Symptom Manage. 2023 Apr;65(4):e369-e373.

High Flow Nasal Cannula in Patients With Cancer at the End of Life

What They Did

- High flow nasal cannula (HFNC) is frequently used to manage dyspnea in patients with cancer near the end of life. Because HFNC is restricted to the in-patient setting, patients on HFNC need to be liberated from it to be discharged from the hospital.
- A retrospective chart review of 374 adult patients with cancer on HFNC admitted to a palliative and supportive care unit from 2018-2020.
- They determined the proportion of patients who were liberated from HFNC (by day three and overall) and the proportion of patients discharged alive.

Why It Matters

- Only 16% (95% CI: 13-20) of the patients were discharged alive.
- Liberation from HFNC by day three and overall was accomplished in 23% and 25% of the patients respectively.
- Comparing the patients who could be liberated from HFNC vs. those who could not by day three, 38% vs. 9% were discharged alive respectively; and overall, 62% vs. 1% respectively ($P < 0.001$ in both cases).

Conclusion

- Ninety percent of patients with cancer, with ECOG greater than 3, who receive at least 3 days of HFNC for dyspnea at the end of life die in the hospital; prognostic discussions with patients requiring HFNC should include the risk of in-hospital death as only a minority are discharged alive.



How Do We Best Explain the Impact of Music Therapy Using Biomarkers?



Psychoneuroendocrinological effects of music therapy versus mindfulness in palliative care: results from the 'Song of Life' randomized controlled trial

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ORIGINAL ARTICLE



Psychoneuroendocrinological effects of music therapy versus mindfulness in palliative care: results from the 'Song of Life' randomized controlled trial

Friederike Koehler^{1,2} · Jens Kessler³ · Martin Stoffel^{1,2} · Martin Weber⁴ · Hubert J. Bardenheuer³ · Beate Ditzen^{1,2} · Marco Warth^{1,2}

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Abstract

Purpose Although research on psychosocial interventions in palliative care provided evidence for their effectiveness regarding patient-reported outcomes, few studies have examined their psychobiological effects yet. Therefore, the purpose of the present work as part of an overarching study was to investigate differential effects of music therapy versus mindfulness on subjective distress and both neuroendocrine and autonomic stress biomarkers.

Methods A total of 104 patients from two palliative care units were randomly assigned to three sessions of either music therapy or mindfulness. Before and after the second session (completed by 89 patients), participants rated their momentary distress and provided three saliva samples for cortisol and α -amylase analysis. Furthermore, photoplethysmography recordings were continuously assessed to calculate mean heart rate and heart rate variability. Data were analyzed using multilevel modeling of all available data and sensitivity analysis with multiply imputed data.

Results Between 67 and 75% of the maximally available data points were included in the primary analyses of psychobiological outcomes. Results showed a significant time*treatment effect on distress ($b = -0.83, p = .02$) indicating a greater reduction in the music therapy group. No interaction effects were found in psychobiological outcomes (all $p > .05$), but multilevel models revealed a significant reduction in cortisol ($b = -0.06, p = .01$) and mean heart rate ($b = -7.89, p = .05$) over time following either intervention.

Conclusion Findings suggest a beneficial effect music therapy on distress while no differential psychobiological treatment effects were found. Future studies should continue to investigate optimal stress biomarkers for psychosocial palliative care research.

Trial Registration German Clinical Trials Register (DRKS)—DRKS00015308 (date of registration: September 7, 2018)

Keywords Music therapy · Cancer · Palliative care · Stress · Mindfulness · Oncology

Background

Palliative and supportive care aims at the relief of suffering in patients facing a life-threatening disease addressing their needs holistically on a physical, psychological, social, and spiritual level. Therefore, psychosocial interventions from various disciplines have been developed with a therapeutic focus on emotional, spiritual, or interpersonal consequences of a terminal disease and its symptoms, or more broadly, on the relief of stress.

✉ Marco Warth
marco.warth@med.uni-heidelberg.de

¹ Institute of Medical Psychology, Center for Psychosocial Medicine, University Hospital Heidelberg, Berghheimer Str. 20, 69115 Heidelberg, Germany

² Ruprecht-Karls-University Heidelberg, Heidelberg, Germany

³ Center of Pain Therapy and Palliative Care Medicine, Department of Anesthesiology, University Hospital

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Psychoneuroendocrinological effects of music therapy versus mindfulness in palliative care: results from the 'Song of Life' randomized controlled trial

What They Did

- 104 patients from two palliative care units were randomly assigned to three sessions of either music therapy or mindfulness.
- Before and after the second session rated their momentary distress and provided three saliva samples for cortisol and α -amylase analysis. Furthermore, photoplethysmography recordings were continuously assessed to calculate mean heart rate and heart rate variability.
- Data were analyzed using multilevel modeling of all available data and sensitivity analysis with multiple imputed data.

Why It Matters

- Although research on music therapy has provided evidence for effectiveness regarding patient-reported outcomes, few studies have examined their psychobiological effects yet.
- Results showed a significant effect on distress ($b = - 0.83$, $p = .02$) indicating a greater reduction in the music therapy group.
- No interaction effects were found in psychobiological outcomes (all $p > .05$), but multilevel models revealed a significant reduction in cortisol ($b = - 0.06$, $p = .01$) and mean heart rate ($b = - 7.89$, $p = .05$) over time following either intervention.

Conclusion

- Findings suggest a beneficial effect music therapy on distress while no differential psychobiological treatment effects were found. Future studies should continue to investigate optimal stress biomarkers for psychosocial palliative care research.



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