The Role of Red Blood Cell Transfusion in Palliative Care

15th Annual Transfusion Medicine Education Videoconference Symposium

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Disclosures

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Remembering a mentor and friend

Dr. Elianna Saidenberg

(1976-2019)

Current Team

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- Ed Fitzgibbon
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- Dean Fergusson

Collaborators in the UK:

- Karen Neoh
- Michael Bennett
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Objectives

1. Summarize the factors associated with red blood cell transfusion in patients receiving palliative care.
2. Describe the role of transfusion in symptom management in palliative care patients.
3. Review the clinical, ethical, and systemic factors influencing the decision to transfuse red blood cells in the palliative setting.

Definition of Palliative Care

"An approach that improves the **quality of life** of patients and their families facing the problem associated with **life-threatening illness**, through the prevention and **relief of suffering** by means of **early identification** and impeccable assessment and treatment of pain and other problems, **physical, psychosocial and spiritual**."

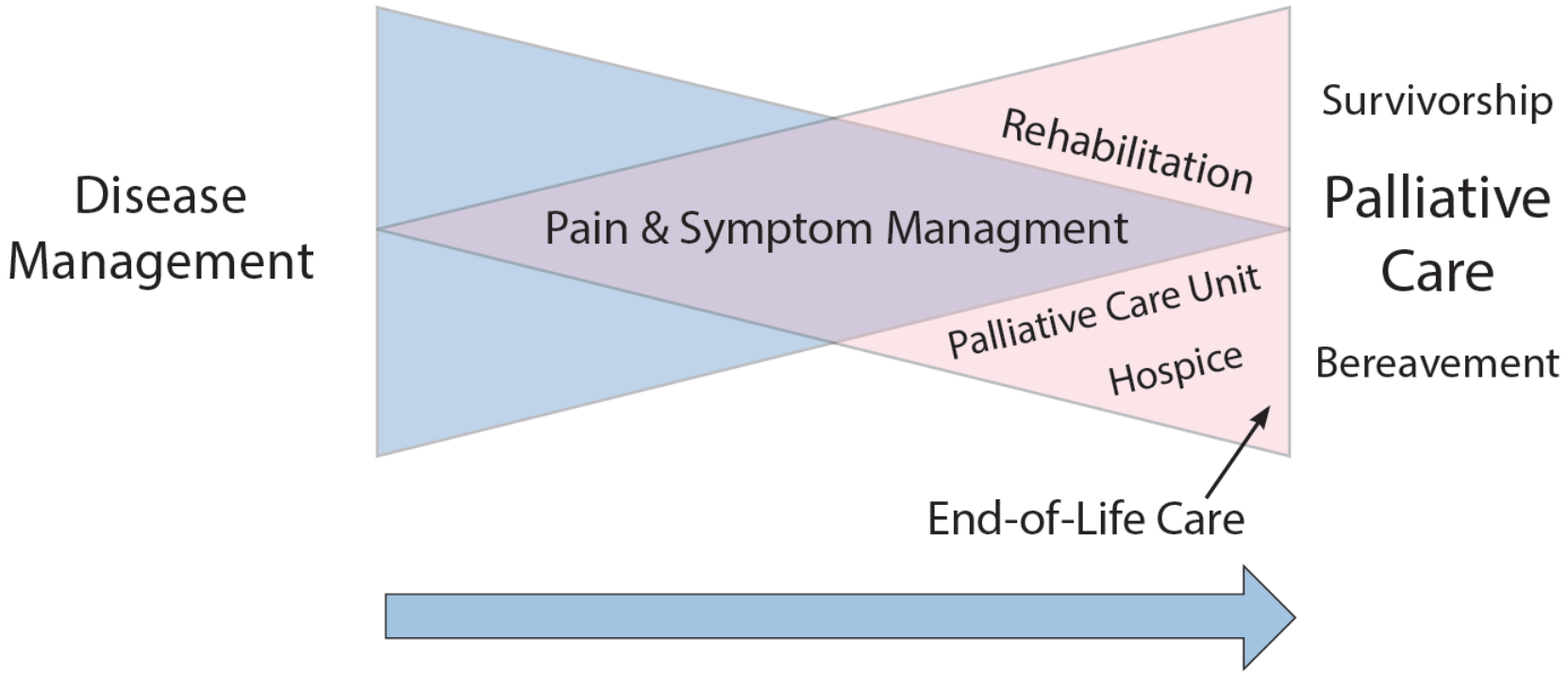
World Health Organization

Palliative Care: Historical Understanding

ACTIVE ("CURATIVE") TREATMENT	PALLIATIVE CARE
	

Palliative Care: A Current Model

The "Bowtie" Model of 21st Century Palliative Care



- Whole person care
- Multidisciplinary teams
- Shared care
- Many care settings

Hawley, JPSM 2014

Hematology & Palliative Care

OR

Background: Palliative Care & Transfusion

- Fatigue and dyspnea are commonly reported symptoms known to impair quality of life in palliative care patients
  - Multifactorial
  - Anemia may contribute
- Red blood cell (RBC) transfusion is a potential therapy for symptoms of anemia, however
  - Its efficacy (and safety) in a palliative care population is unclear
  - Several other clinical and non-clinical factors may affect decisions to transfuse in this group
- In many settings, restrictive hemoglobin (Hb) thresholds for RBC transfusion are favoured and well supported by clinical trials[1]

[1]Carson et al., *JAMA* 2016

TRANSFUSION AABB REVIEW

Red blood cell transfusion in adult palliative care: a systematic review

Nicolas Chin-Yee,[1] Joshua Taylor,[2] Kaitlyn Rourke,[2] Danika Faig,[2] Alexandra Davis,[1] Dean Fergusson,[2] and Elianna Saidenberg[1,2]

Study and patient characteristics

- **13 studies** (no RCTs)
- **3,473 patients** (median 112 per study)
  - 995 (29%) received RBC transfusion
  - Most had advanced cancer

Indications for transfusion

- Symptomatic anemia: severe fatigue, weakness, dyspnea and/or lightheadedness
- Low Hb: thresholds **80-100 g/L**
- Acute bleeding
- Benefits from previous transfusion

Outcomes: symptom relief

- **9** studies reported **symptom relief** as the primary transfusion-related outcome. Of these…
  - 3 did not employ any specific scale (subjective improvement)
  - 8 reported post-transfusion improvement in fatigue or well-being
  - 2 assessed the duration of symptom relief following transfusion [18.5 days (HRQOL); 2 but not 15 days (ESAS)]

Outcomes: other

- **4** reported on **survival** post-transfusion (median 42-90 d)
  - 3 of these did not include non-transfused comparison group
- **4** reported increased **Hb values** post-transfusion
- **3** reported **complications** of transfusion
  - None of the reactions were described using common taxonomy of transfusion reactions

Chin-Yee et al., Transfusion 2018

Systematic Reviews: Bottom Line

JOURNAL OF PALLIATIVE MEDICINE
Volume 17, Number 1, 2014

DOI: 10.1089/jpm.2013.0387

Transfusion in Palliative Cancer Patients:
A Review of the Literature

María Elena Uceda Torres, MD,[1] Juan Nicolás Rodríguez Rodríguez, MD, PhD,[2]
José Luis Sánchez Ramos, MD, PhD,[3] and Francisco Alvarado Gómez[4]

TRANSFUSION REVIEW

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Uceda Torres et al., J Palliat Med 2014
Chin-Yee et al., Transfusion 2018

Findings:

- Transfusion occurs in 'palliative care' patients
- Previous reports demonstrated significant variability in focus/outcomes and in transfusion practices
- Paucity of high-quality evidence to guide transfusion practices
- Possible short-term subjective improvement in some patients
- Risks of transfusion were poorly characterized

Main messages:

- The decision to transfuse RBCs in palliative care is complicated
- Future work is needed!
- Growing interest in this topic…

Recent Observational Studies (1)

JOURNAL OF PALLIATIVE MEDICINE
Volume 20, Number 10, 2017

DOI: 10.1089/jpm.2017.0072

The Prospective Evaluation of the Net Effect of Red Blood Cell Transfusions in Routine Provision of Palliative Care

Timothy H.M. To, FRACP,[1–3] Thomas W. LeBlanc, MD,[4] Peter Eastman, FAChPM,[5] Karen Neoh, MB ChB,[6] Meera R. Agar, PhD,[7] Luen Bik To, MD,[8] Debra Rowett, BPharm,[9] Zac Vandersman, BIT,[1] and David C. Currow, FAHMS[1]

To et al., J Palliat Med 2017

- Prospective case series of **101** hospice/PCU patients who received RBC transfusion
- Clinician-reported "improvement" at 7 days for 49% of transfusions (≥1 point change in NCI-CTCAE scores for fatigue, breathlessness, or weakness)
- More symptomatic benefit was seen in those with a higher performance status (AKPS ~50%)

Supportive Care in Cancer (2018) 26:1927–1931
https://doi.org/10.1007/s00520-017-4023-y

Transfusion practices at end of life for hematopoietic stem cell transplant patients

Winnie S. Wang[1] · Joseph D. Ma[2] · Sandahl H. Nelson[3] · Carolyn Revta[4] · Gary T. Buckholz[4] · Carolyn Mulroney[5] · Eric J. Roeland[4]

Wang et al., Support Care Cancer 2018

- Chart review of **116** HSCT patients at the end of life
- Many patients are transfused RBCs and platelets within 24 hours of death (especially those not enrolled in hospice)

Recent Observational Studies (2)

Neoh et al., Palliat Med 2018

- Audit of RBC transfusion in hospices in the UK, **465** transfusion episodes
- Mean pre-transfusion Hb 75 g/L
- 84% of patients received ≥2 units of pRBCS
- Few (**18%**) had maintained "improvement" in symptoms ("clinician-assessed" or extrapolated from change in performance status)
- Hematinics (Fe, B12, Folate) were not assessed in 70% of episodes

National comparative audit of red blood cell transfusion practice in hospices: Recommendations for palliative care practice

Karen Neoh[1], Ross Gray[2], John Grant-Casey[2], Lise Estcourt[3,4], Catherine Malia[5], Jason W Boland[6] and Michael I Bennett[1]

Palliative Medicine
1–7

DOI: 10.1177/0269216318801755
journals.sagepub.com/home/pmj
SAGE

Sirianni et al., Am J Hosp Palliat Med 2018

- Chart review of transfusions in PCUs at Sunnybrook and Baycrest
- Transfusions infrequent: **24** events over 2 years (**0.9 to 1.4%** of pts)
- Indications: dyspnea or fatigue
- Symptomatic benefit (charting, ESAS scores) in **83%**

A Retrospective Chart Review of Transfusion Practices in the Palliative Care Unit Setting

Giovanna Sirianni, BSc, MD, CCFP (PC), FCFP[1,2],
Giulia Perri, MD, CCFP (COE) (PC)[1,3],
Jeannie Callum, BA, MD, FRCP[4,5], Sandra Gardner, PhD[3,6],
Anna Berall, RN[3], and Debbie Selby, MD, FRCPC[1,2,7]

American Journal of Hospice & Palliative Medicine®
1-6

DOI: 10.1177/1049909118806456
journals.sagepub.com/home/ajh
SAGE

RBC Transfusion in Palliative Care: A Retrospective Observational Cohort Study

- **7,174** patients who received an in-patient palliative care consultation
- RBC transfusions are common **(12.9%)** in patients receiving palliative care
- Transfusions frequently occurred:
  - Within the final 2 weeks of life
  - In patients with a poor performance status
  - In patients with a Hb greater than 70 g/L
- Transfusion-related adverse events in **4.4%**
- Factors associated with RBC transfusion:
  - Cancer diagnosis (especially hematologic malignancy)
  - Lower Hb
  - Previous transfusion
  - Younger age and higher performance status

Chin-Yee et al., Unpublished Data

Physician Surveys

Blood transfusion practice in the UK and Ireland: a survey of palliative care physicians

Karen Neoh,[1] Simon Stanworth,[2] Michael I Bennett[1]

Neoh et al., BMJ Support Palliat Care 2018

- Survey of **293** Palliative Medicine specialists in the UK
- Clinical vignettes given - "acceptable" answers were based on NICE transfusion guidelines
- <50% selected guideline-concordant answers
- More liberal practices (over-transfusing?)

Red Blood Cell Transfusion in Palliative Care: A Survey of Palliative Care Physicians

Nicolas Chin-Yee, MD,[1] Joshua Taylor, BSc,[1] James Downar, MD, CM, MHSc, FRCPC,[1] Peter Tanuseputro, MD, MHSc, CCFP, FRCPC,[1–3] and Elianna Saidenberg, MD, FRCPC[1,2]

Chin-Yee et al., J Palliat Med 2019

- Survey of **29** Canadian palliative care physicians
- RBC transfusion frequently reported
  - Commonest in Med Onc/Hem Onc patients
  - Often prescribed by PC MD
  - Reluctance to recommend its discontinuation
- Factors influential in the decision to transfuse:
  - Symptoms of anemia (97%)
  - Bleeding (62%)
  - Low Hb (52%); 87% indicated a Hb threshold <70g/L
  - Pressure from patients/families (48%)
- Few employed objective methods to assess for benefit
- Most perceived a lack of evidence to guide practices
- 79% were willing to enroll patients in a prospective trial

Hematology & Palliative Care in 2019-2020

PALLIATIVE MEDICINE

Volume 33 Number 5 May 2019

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Top Ten Tips Palliative Care Clinicians Should Know About Caring for Patients with Hematologic Malignancies

Jason A. Webb, MD,[1,2] Anessa M. Foxwell, MSN, APRN,[3] Christopher A. Jones, MD, MBA,[3] Areej El-Jawahri, MD,[4] Arif H. Kamal, MD, MHS, MBA,[5,6] Neha Kayastha, MD,[7] Eric J. Roeland, MD,[4] and Thomas W. LeBlanc, MD, MA, MHS[5,8]

JOURNAL OF Palliative Medicine

Volume 22, Number 11, 2019

DOI: 10.1089/jpm.2019.0332

Palliative Care Specialists Series

Feature Editors: Christopher A. Jones and Arif H. Kamal

Patients with haematological malignancies should not have to choose between transfusions and hospice care

Oreofe O Odejide, David P Steensma

***Lancet Haematol* 2020;**
7: e418–24

***Panel*: Barriers to hospice use for patients with blood cancers**

Disease factors
- Unpredictable disease trajectory
- Cytopenias and need for transfusion support
- High prognostic uncertainty

Patient factors
- Desire to continue transfusion support
- Misconceptions about hospice care

Haematological oncologist factors
- Perspective that hospice is inadequate for patients' needs
- Untimely goals of care discussions

System factors
- Poor availability of transfusion access in hospices
- Absence of structures for home-based transfusions
- Payment models that do not support transfusions

Bottom line:

- End-of-life care remains suboptimal for patients with hematologic malignancies
- The dichotomy between supportive transfusion and palliative/hospice care is a major barrier to achieving quality palliative and end-of-life care

Another Review on Transfusion?

Transfusion as a Palliative Strategy

Jay S. Raval [1]

Published online: Aug 30, 2019

Table 1 Suggested guidelines for considering red cell and platelet transfusion in palliative care patients

Estimate duration of survival
- In patients that are predicted to live > 7 days, investigate causes of cytopenias and correct any underlying abnormalities

Investigate cytopenias
- Explore causes of anemia, thrombocytopenia, and bleeding
- Implement corrections in lieu of or in addition to transfusion

Consider risk-benefit profile of transfusion therapy
- Health care providers should clearly explain benefits versus risks of transfusion therapy, particularly the hazard of transfusion associated circulatory overload, as part of obtaining informed consent
- Suggest alternatives to transfusion (e.g., supplemental oxygen, antifibrinolytic therapy, et cetera)
- Clearly define expectations and goals of transfusion, and use tangible endpoints after transfusion to guide whether or not to continue therapy with blood components

Use restrictive transfusion thresholds based on high-quality recommendations
- In patients without cardiac disease, implement a red cell transfusion threshold of < 7 g/dL
- In patients with cardiopulmonary disease, implement a red cell transfusion threshold of < 7–10 g/dL
- In patients without active bleeding, implement a platelet transfusion threshold of < 10,000/μL
- In patients with active bleeding or who are at high risk of bleeding, implement a platelet transfusion threshold of < 20,000-50,000/μL

Perform the transfusion safely
- If a patient is at risk of transfusion associated circulatory overload, discuss strategies to minimize risks with the Blood Bank
- Transfuse weight-appropriate doses of blood components slowly (over up to 4 h per unit)
- Only transfuse one blood components unit at a time, and reevaluate impacts after each unit
- Unnecessarily large blood components volumes that are transfused can cause iatrogenic injury via transfusion associated circulatory overload and other reactions

Evaluate outcomes after transfusion
- After transfusion, repeat laboratory testing within 24 h for red cells and within 1 h for platelets
- Perform a functional assessment no later than 7 to 14 days after red cell transfusion and as soon as possible after platelet transfusion
- Based on impacts of transfusion (if any), reassess need for additional blood components

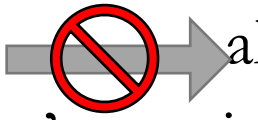
Ethical Issues & Challenges

- Inconveniences of transfusion – time away from home for patient and family
- Informed consent for transfusion in our population
  - Symptom benefit?
  - Life prolongation?
  - Describing the risks!
- Equitable use of resources (blood products and IV therapy space)
- Therapeutic benefits of transfusion unrelated to physiologic mechanisms
  - Sense of hope and being cared for (placebo?)
  - Blood's connotations—a metaphor for life

Summary: What We Know

- RBC transfusion occurs in the supportive/palliative care setting
- Current evidence-based recommendations on Hb thresholds for RBC transfusion are:
  - Drawn from studies of non-palliative care populations
  - Focused largely on mortality and not symptom improvement
- Observational studies of RBC transfusion palliative care suggest that some patients may benefit symptomatically
  - Benefit was modest but often not enduring; usually in those with a better performance status
- There is a group of patients with advanced disease/poor functional status that are probably transfused inappropriately

Practical Guidance & Lessons Learned

- Anemia  all symptoms
- 'Correcting' anemia with RBC transfusion is NOT analogous to replacing electrolytes (normal range, risks…)
  - Consider risks and impacts on QOL of RBC transfusion!
  - Consider other treatments for anemia if appropriate (Fe, B12, ESAs)
- The decision to transfuse or discontinue transfusion is complex/nuanced
  - Avoid momentum/feeling need to continue transfusion
  - Ask the patient and family, and educate other HCPs (assumptions, informed consent, symptoms!)
- Many unanswered questions and possibilities for further work on the intersection between hematology/transfusion medicine and palliative medicine

Acknowledgements

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- The University of Ottawa Internal Medicine and Palliative Medicine programs
- My friends and family

Questions?
Discussion…

Further questions or feedback?

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