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Goal-concordant care: The intersection between drugs and disease for those with serious illness

Wayne H. Grant, PharmD, MBA
National Clinical Innovation Officer
Delta Care Rx

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From which State do you currently live?

Enter Text and Press Send

10

4

POLL OPEN

Which month of the year is your favorite?

1. January
   0%
2. February
   0%
3. March
   0%
4. April
   0%
5. May
   0%
6. June
   0%
7. July
   0%
8. August
   0%
9. September
   0%
10. October
    0%
11. November
    0%
12. December
    0%

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Objectives

1. Define goal-concordant care.
2. Describe how goal-concordant care relates to advanced directives
3. Relate how seriously ill patients' response to drugs will change over time and how to adjust therapies that continue to be appropriate for their care.
4. Discuss specific disease states, symptoms and outcomes expected defined by goal-concordant care.
5. Consider how deprescribing compliments goal-concordant care
6. Use an interactive approach to learning.

7

Patients' Fear

Ganzini et al. Physicians' Experiences with the Oregon Death with Dignity Act. *NEJM.* 2011;342;557-563

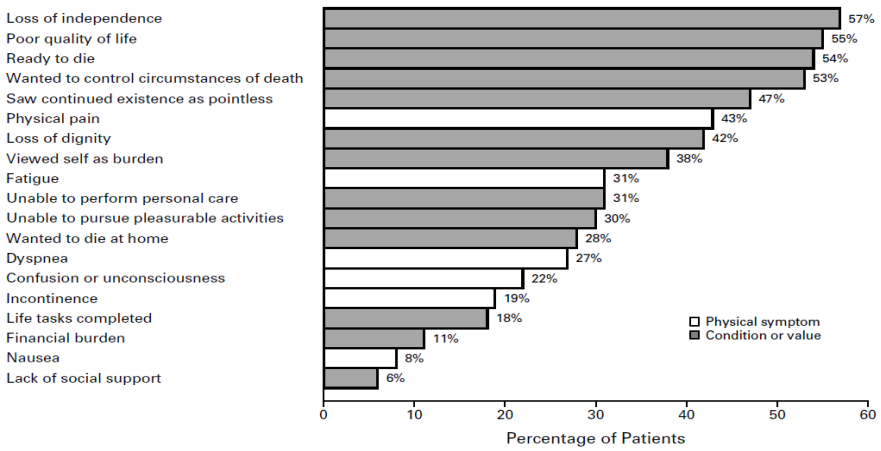

Figure 1. Reasons for Requesting Prescriptions for Lethal Medications.
A total of 143 patients gave their physicians a specific reason for the request. Some patients gave more than one reason.

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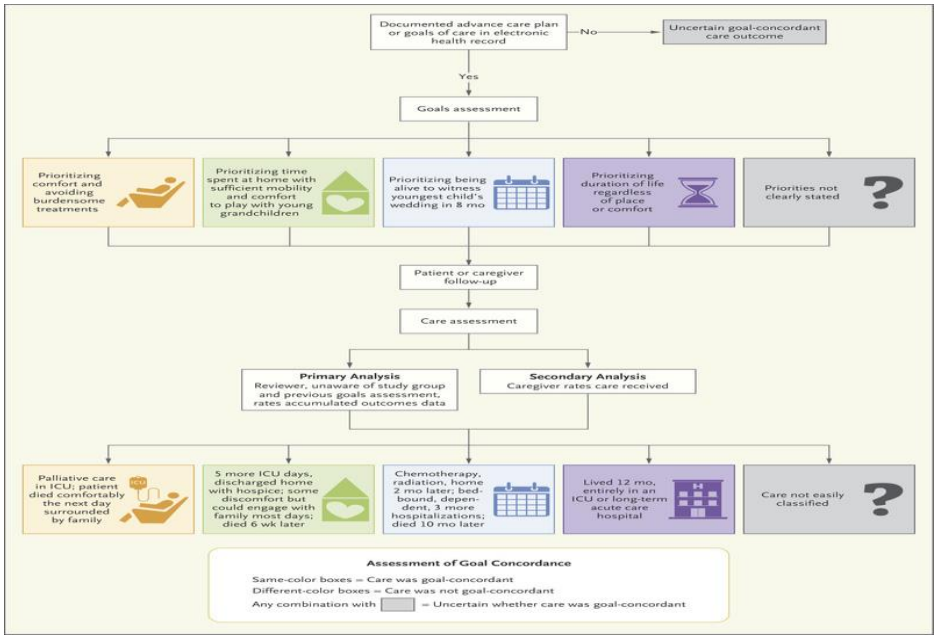

Halpern SD. Goal-Concordant Care - Searching for the Holy Grail. N Engl J Med. 2019;381(17):1603-1606.

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So what's the problem?

- The delivery of goal-concordant care has been identified as a key priority by the National Academy of Medicine proposed as a quality measure and rated by an expert panel as the most important outcome measure for studies of advance care planning interventions.
- Among the 795,909 people in the 150 studies we analyzed, 36.7 percent had completed an advance directive, including 29.3 percent with living wills.
  - Approximately One In Three US Adults Completes Any Type Of Advance Directive For End-Of-Life Care. Kuldeep N. Yadav, Nicole B. Gabler, Elizabeth Cooney, Saida Kent, Jennifer Kim
- So, we are doing this after we tell the patient/family that the patient is being recommended for hospice care!

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Messaging

- Hospice is a specialty just like cardiology, oncology and others.
- We are here to discuss what is most important to you
- Our specialty uses a host of drug and non-drug therapies that will help us meet your wishes (goals of care).
- Just like any specialty we will work with your current doctors to reduce, eliminate and start medications that will make you comfortable.
- We are a team that is here to support all of your needs.

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Collaboration

- Outreach
  - Health-systems
  - Community
  - Other referral sources

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Translational medicine

- NIH: The process of turning observations in the laboratory, clinic and community into interventions that improve the health of individuals and the public — from diagnostics and therapeutics to medical procedures and behavioral changes.
- We find ourselves here, often.

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How Hope Grows!

- VIDEO

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Advanced directives

- Advance directives
  - Individual fills out the form
  - States a surrogate, healthcare advocate
  - Relays treatment wishes
  - Reviewed after the patient is stable
- POLST/MOLST
  - A provider (physician/NP)
  - Defines goals of care
  - Relays any specific treatments
  - Treat patient where they are

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DNR v. POLST

- First responders (DNR)
  - Do not attempt CPR
  - Does not describe what treatment the patient wants
- First responders (POLST)
  - Do not attempt CPR or attempt CPR
  - Full
    - ICU
  - Selective
    - Not in ICU
  - Comfort focused
    - Stay at home

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What is next?

- Now that we know what our patients and families want we must create a structure that best addresses their goal(s)
- However!
  - A hospice may have a formulary
  - A hospice may include and exclude drugs not on the formulary
  - A hospice must understand the complexity of pharmacotherapy and determine with their partners the best approach to care
    - Some times this involves Medication Use Criteria (MUC)
    - Some times this involves disease specific algorithms
    - All the times this involves collaboration with partners

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So what are your goals?

- I want to live to 100 years of age or beyond!
  - The quantity question
- I want to live until the burden of life is overwhelming to me!
  - The quality question
- I want to live until the natural or spiritual world claims me!
  - The evolution question

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POLL OPEN

Which of the following would be your most important goal?

1. I want to live to 100 years of age or beyond!
2. I want to live until the burden of life is overwhelming to me!
3. I want to live until the natural and/or spiritual world claims me!

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How do we meet patient's goals of care based on various disease states?

- Defining the serious illness
- Symptom management of the serious illness and related conditions
  - Cancer
  - Dementia due to Alzheimer disease
  - Heart disease
  - Pulmonary disease
- Prescribing and deprescribing based on goals of care

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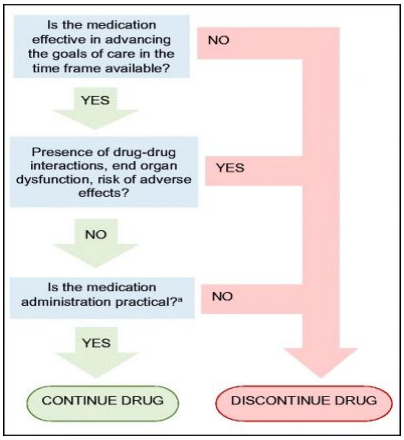
A simple algorithm



Spiess, J.L. Hospice in heart failure: why, when, and what then?. Heart Fail Rev 22, 593–604 (2017).

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Cancer

- Disease with metastases at presentation OR
- Progression from an earlier stage of disease to metastatic disease with either continued decline in spite of therapy or patient declines further disease-directed therapy.
- Note: Certain cancers with poor prognoses (e.g., small-cell lung cancer, brain cancer, and pancreatic cancer) may be hospice eligible without fulfilling the other criteria in this section.

Medical guidelines for determining appropriateness of hospice referral: Disease-specific guidelines. UpToDate. https://www.uptodate.com/. Published 2021. Accessed June 29, 2021

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Cancer Symptoms

- Anxiety/insomnia
- Cachexia
- Chemotherapy-induced nausea and vomiting (CINV)
- Cancer-related fatigue (CRF)
- Oral mucositis (OM)
- Pain

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Nausea and vomiting pathophysiology

- Peripheral and central pathways
- Toxic agents stimulate enterochromaffin cells in the gastrointestinal system which stimulate serotonin (5-HT).
- Binding occurs with serotonin-3 (5-HT3) to intestinal vagal nerves, which stimulate the vomiting reflex
- Delayed and refractory response stem from the postrema of the midbrain, a rich dopamine receptor region.

Adel N. Overview of chemotherapy-induced nausea and vomiting and evidence-based therapies. Am J Manag Care. 2017;23(14 Suppl):S259-S265.

24

Nausea and vomiting pathophysiology (visual)

R.M. Navari / Biochimica et Biophysica Acta 1848 (2015) 2738–2746

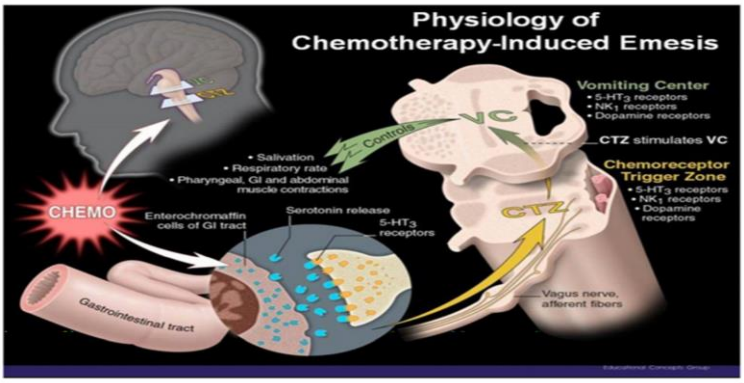

Fig. 1. Physiology of chemotherapy-induced emesis.

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Phases

- Acute
  - Within a few hours of chemo, peaks within several hours, and resolves in 24 hours
- Delayed
  - After acute, peaks in 2-3 days, and may last 6-7 days
- Anticipatory
  - Prior to chemo administration; conditioned response to poor control of previous episodes
- Breakthrough/Refractory
  - Persists despite appropriate prophylaxis for acute and delayed N/V

Adel N. Overview of chemotherapy-induced nausea and vomiting and evidence-based therapies. Am J Manag Care. 2017;23(14 Suppl):S259-S265.

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Drug(s) of choice for seriously ill patients

- 5-HT3 antagonists
  - Ondansetron, dolasetron, and granisetron
- Dopamine antagonists
  - Metoclopramide, prochlorperazine, olanzapine, haloperidol
- Benzodiazepines
  - Lorazepam, diazepam

Adel N. Overview of chemotherapy-induced nausea and vomiting and evidence-based therapies. Am J Manag Care. 2017 Sep;23(14 Suppl):S259-S265.

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THC and others

- Video and Text

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Anticoagulation/antiplatelet

- Atrial fibrillation
  - Score bleeding
    - HAS-BLED (estimates risk of major bleeding for patents on anticoagulation to assess risk-benefit in atrial fibrillation care
- PE/DVT treatment/prevention
  - Khorana risk score for VTE
- PPS

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To stop or not to stop…

- The estimated risk of recurrence following cessation of anticoagulation in patients with a first unprovoked episode of VTE is 10 percent at one year and 30 percent at five years (approximately 5 percent per year after the first year).
  - What would our oncology collogues suggest?
- What would goal concordant care suggest?
- What would translational medicine offer?

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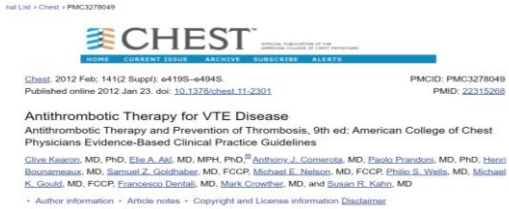
Risk of bleeding

- Patients with a high risk of bleeding — In general, indefinite anticoagulation should not be offered to patients with a high risk of bleeding. However, should the risk for bleeding resolve (e.g., recovery from trauma), indefinite anticoagulation may be reconsidered. Assessing the risk of bleeding is discussed separately.
  - https://www.uptodate.com/contents/rationale-and-indications-for-indefinite-anticoagulation-in-patients-with-venous-thromboembolism?search=rate%20of%20bleeding%20vte&source=search_result&selectedTitle=3~150&usage_type=default&display_rank=3#H648611


nal List › Chest › PMC3278049

CHEST

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Chest. 2012 Feb; 141(2 Suppl): e419S–e494S.
Published online 2012 Jan 23. doi: 10.1378/chest.11-2301

PMCID: PMC3278049
PMID: 22315268

Antithrombotic Therapy for VTE Disease
Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines

Clive Kearon, MD, PhD, Elie A. Akl, MD, MPH, PhD, Anthony J. Comerota, MD, Paolo Prandoni, MD, PhD, Henri Bounameaux, MD, Samuel Z. Goldhaber, MD, FCCP, Michael E. Nelson, MD, FCCP, Philip S. Wells, MD, Michael K. Gould, MD, FCCP, Francesco Dentali, MD, Mark Crowther, MD, and Susan R. Kahn, MD

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VTE recurrence v. VTE rate of bleeding

Rate of venous thromboembolism (VTE) recurrence

VTE type	First year	Annual rate after first year
First episode of unprovoked VTE	10 percent	5 percent
Second episode of unprovoked VTE	15 percent	7.5 percent
First VTE provoked by surgery	1 percent	0.5 percent
First VTE provoked by non-surgical factor	5 percent	2.5 percent

Data from: Kearon C, Akl EA, Comerota AJ, et al. Antithrombotic therapy for VTE disease: Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Chest 2012; 141:e419S.

UpToDate®

Rate of bleeding stratified by risk in patients with venous thromboembolism (VTE) on anticoagulation

Bleeding risk	First 3 months	Annual rate after first 3 months
Low risk (no risk factors present)	1.6%	0.8%
Intermediate risk (one risk factor present)	3.2%	1.3%
High risk (two or more risk factors present)	12.8%	≥6.5%

Data from: Kearon C, Akl EA, Comerota AJ, et al. Antithrombotic therapy for VTE disease: Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Chest 2012; 141:e419S.

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Maybe we need to think differently

a. *Prognosticating using the PPS in Cancer Patient*; Red is the median survival rate of 50%

PPs/Survival rate (%) in days	1	3	5	7	14	30	45	60	90	180	365	Total Cases
70%	99	97	96	95	87	77	62	51	35	16	7	150
60%	99	97	95	92	83	64	49	41	29	12	5	487
50%	97	93	87	82	67	47	36	28	19	8	4	1055
40%	94	82	73	66	46	27	19	15	9	4	1	1647
30%	84	63	48	40	23	12	8	6	4	2	1	1420
20%	56	28	15	9	4	2	2	1	1	0	0	737
10%	34	13	5	3	1	0	0	0	0	0	0	570

Using the Palliative Performance Scale to provide meaningful survival estimates. Lau F1, Downing M, Lesperance M, Karlson N, Kuziemsky C, Yang J.J Pain Symptom Manage. 2009 Jul;38(1):134-44.

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HIDDen findings

- 1 in 3 people with advanced incurable disease admitted to SPCU (specialized palliative care unit) had a femoral deep vein thrombosis (DVT)
- The incidence of thrombosis during 3 week follow-up was low
- No statistically significant association between DVT on admission and survival.
- Leg edema was the only VTE relevant sign or symptom associated with DVT
- The question: Is VTE merely another manifestation of the inflammatory state of advanced disease, known to be associated with worse survival, and which does the greater damage at this state of disease?

White C, Noble SIR, Watson M, et al. Prevalence, symptom burden, and natural history of deep vein thrombosis in people with advanced cancer in specialist palliative care units (HIDDen): a prospective longitudinal observational study [published correction appears in Lancet Haematol. 2019 Jun;6(6):e294]. *Lancet Haematol.* 2019;6(2):e79-e88.

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Dementia

- Stage 7 or beyond according to the Functional Assessment Staging Scale; unable to walk, dress, and bathe without assistance; urinary and fecal incontinence (intermittent or constant); no consistently meaningful verbal communication (stereotypical phrases only or the ability to speak is limited to 6 or fewer intelligible words); AND
- At least 1 medical complication within the past 12 months: aspiration pneumonia, pyelonephritis, septicemia, multiple stage 3 to 4 decubitus ulcers, recurrent fever after antibiotics, inability to maintain sufficient fluid and calorie intake (>/= 10% weight loss over previous 6 months or serum albumin <2.5 g/dL).

Medical guidelines for determining appropriateness of hospice referral: Disease-specific guidelines. UpToDate. https://www.uptodate.com/. Published 2021. Accessed June 29, 2021.

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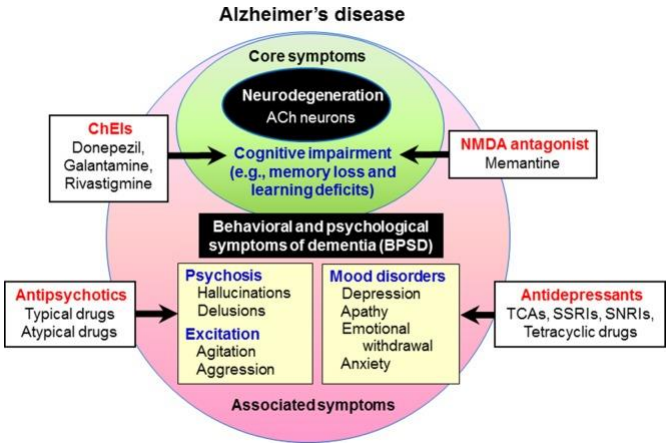
Dementia



Ohno Y, Kunisawa N, Shimizu S. Antipsychotic Treatment of Behavioral and Psychological Symptoms of Dementia (BPSD): Management of Extrapyramidal Side Effects. Frontiers in Pharmacology. 2019 ;10:1045.

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POLL OPEN

Which of the following drugs are approved by the FDA for the treatment of behavioral and psychological symptoms of dementia (BPSD)?

1. Risperidone
   0%
2. Haloperidol
   0%
3. Lorazepam
   0%
4. Divalproex
   0%
5. ✓ None of the above
   0%

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Key Points

- Current pharmacotherapy of dementia-related psychosis and agitation/aggression relies on the off-label administration of atypical antipsychotics, which have limited clinical efficacy and induce various adverse reactions.
- Genetic studies have suggested several druggable targets that correspond with the etiology of dementia-related psychosis and agitation/aggression: serotonin 5-HT2A and 5-HT1A receptors, serotonin transporter, alpha-1 adrenoceptor, and dopamine D1 and D3 receptors.
- Novel therapeutic approaches may benefit particularly from targeting the serotoninergic system with serotonin 5-HT2A and 5-HT1A ligands or serotonin transporter inhibitors, which are currently being investigated in phase III clinical trials.
- Preclinical and clinical studies have suggested other relevant molecular targets that may result in therapeutically acceptable efficacy: cannabinoid receptors, metabotropic glutamate 2 receptors, muscarinic M1/M4 receptors, and glutamate N-methyl-D-aspartate receptors.
- Blockade of M1, alpha-2 adrenergic, and histamine H1 receptors and the human ether-a-go-go-related gene channel should be avoided because elderly patients are particularly sensitive to adverse reactions induced by the drugs acting on these targets.

Marcinkowska, M., Śniecikowska, J., Fajkis, N. et al. Management of Dementia-Related Psychosis, Agitation and Aggression: A Review of the Pharmacology and Clinical Effects of Potential Drug Candidates. CNS Drugs 34, 243–268 (2020).

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Various movement disorders

- Video

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Which of the following is has the greatest evidence (EBM) support behind its use for terminal secretions?

POLL OPEN

1. Atropine opthalmic drops given sublingually
   0%
2. Glycopyrrolate tablets given sublingually
   0%
3. Hyoscyamine sublingual tablets
   0%
4. ✓ Non-pharmacological interventions/family education
   0%
5. Scopolamine patches
   0%

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Non-pharmacologic intervention

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DRUGS IN CONTEXT
RIGOROUS • RAPID • RESPONSIVE

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REVIEW

Analgesics in the management of behavioral and psychological symptoms of dementia: a perspective review

Rajesh R Tampi[1], Corey Hassell[2], Pallavi Joshi[3], Deena J Tampi[4]

[1]Department of Psychiatry, MetroHealth, Cleveland, OH, USA; [2]Quinnipiac University School of Medicine, Hamden, CT, USA; [3]Northwell Health-Staten Island University Hospital, Staten Island, NY, USA; [4]Mercy Regional Medical Center, Lorain, OH, USA

Conclusion

Although limited, available evidence from the studies included in this review indicate efficacy for analgesics in reducing BPSD particularly among the old–old (mean age ≥ 85 years) for a short duration (8 weeks). Reductions in severity were noted on a wide variety of symptoms including verbal, physical, and social behaviors. The analgesics appeared to be generally well tolerated when compared to placebo or to usual management strategies. The available data from this review on the use of analgesics in reducing BPSD should be considered as preliminary. Positive data from multiple larger studies with longer duration of treatment that are particularly designed to assess their effects on BPSD would have to be available before analgesics can be considered as definitive agents in the management algorithm for BPSD.

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Heart disease

- At the time of initial certification or recertification for hospice, the patient is or has been already optimally treated for heart disease, or the patient is either not a candidate for surgical procedures or they decline those procedures. (Optimally treated means that patients who are not on vasodilators have a medical reason for not being on these drugs, e.g., hypotension or kidney disease.)
- Patients with congestive heart failure or angina should meet the criteria for the New York Heart Association (NYHA) Class IV. (Class IV patients with heart disease have an inability to carry on any physical activity. Symptoms of heart failure or of the anginal syndrome may be present even at rest. If any physical activity is undertaken, discomfort is increased.) Significant congestive heart failure may be documented by an ejection fraction of ≤20%, but assessment of ejection fraction is not required if not already available.
- Documentation of the following factors supports but is not required to establish eligibility for hospice care: treatment-resistant symptomatic supraventricular or ventricular arrhythmias, history of cardiac arrest or resuscitation, history of unexplained syncope, brain embolism of cardiac origin, or concomitant HIV disease.

Medical guidelines for determining appropriateness of hospice referral: Disease-specific guidelines. UpToDate. https://www.uptodate.com/. Published 2021. Accessed June 29, 2021

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POLL OPEN

Which of the following would be true of your hospice organization? (If you do not work for a hospice or have any other reason not listed below, please choose "Other")

1. We admit patients on vasopressor therapies such as dobutamine or milrinone and manage and pay for the therapy.
   0%
2. We admit patients on vasopressor therapies such as dobutamine or milrinone and collaborate on the therapy with the patients provider, but do not make changes or pay for the therapy.
   0%
3. We do not accept patients on vasopressor therapies such as dobutamine or milrinone.
   0%
4. Other
   0%

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Common medications in HF

Medication	Initial Dose	Maximum Dose
Loop diuretics		
Furosemide	20-40 mg 1-2 times daily	Titrate up to 400 mg/d†
Bumetanide	0.5-1.0 mg 1-2 times daily	Titrate up to 10 mg/d
Torsemide	50 mg 1-2 times daily‡	Titrate up to 200 mg/d
Supplemental thiazides		
Metolazone	1.25 mg/d ½ hour before loop diuretic dose	Intermittent use to restore stable weight, up to 5 mg twice daily
Hydrochlorothiazide	25-100 mg/d before loop diuretic dose	To use instead of metolazone if weaker effect is desired
Spironolactone (only with loop diuretics)	25 mg/d or every other day	25 mg twice daily, occasionally higher for refractory hypokalemia
Angiotensin-converting enzyme inhibitors		
Captopril	6.25 mg twice daily	50-100 mg 4 times daily
Enalapril maleate	2.5 mg twice daily	10-20 mg twice daily
Fosinopril sodium	5-10 mg/d	40 mg/d
Lisinopril	2.5-5.0 mg/d	20-40 mg/d
Quinapril hydrochloride	10 mg twice daily	40 mg twice daily
Ramipril	1.25-2.5 mg/d	10 mg/d
β-Blockers		
Bisoprolol	1.25 mg/d	10 mg/d
Carvedilol	3.125 mg twice daily	25-50 mg twice daily
Metoprolol tartrate	6.25 mg twice daily	75 mg twice daily
Metoprolol CR/XL§	12.5-25 mg/d	200 mg/d
Digoxin	0.125 mg every other day to 0.25 mg/d	No titration except to avoid toxic effects
Other vasodilators		
Isosorbide dinitrate‖	10 mg 3 times daily	80 mg 3 times daily
Sublingual isosorbide	2.5 mg as occasion requires or prior to exercise to decrease dyspnea	
Hydralazine	25 mg 3 times daily	150 mg 4 times daily

*Data are adapted from Hunt et al.[9]
†Titrate to achieve patient dry weight. Optional volume status may occasionally be higher than dry weight in the setting of disproportionate right ventricular failure or limitation of renal function by the cardiorenal syndrome (see "Cardiorenal Syndrome in Heart Failure" section).
‡Usually substituted for furosemide after persistent or recurring fluid retention, so initial doses may be higher.
§CR/XL indicates controlled-release/extended-release metoprolol succinate.
‖Efficacy and doses of other nitrate preparations not well established.

Nohria A, Lewis E, Stevenson LW. Medical Management of Advanced Heart Failure. JAMA. 2002;287(5):628–640.

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HF drugs, keep or deprescribe?

- Angiotensin-converting enzyme inhibitors
  - May improve dyspnea and fatigue
- Beta blockers
  - May help with rate control, hypertension and angina
- Diuretics
  - Loops/aldosterone inhibitors
  - Helpful for symptoms, caution with spironolactone
- Statins
  - Not helpful with disease or survival

Spiess, J.L. Hospice in heart failure: why, when, and what then?. Heart Fail Rev 22, 593–604 (2017).

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HF drugs, keep or deprescribe?

- Anticoagulants
  - With or without non-valvular atrial fibrillation for thromboembolic events is .9-7.5%. Little benefit for survival of weeks to months.
- Deactivation of device
  - Goal oriented choice
  - ICD (implantable cardioverter defibrillator)
  - Pacemaker
    - Provides many patients with symptom control of fatigue, dyspnea, syncope
- Oxygen
  - Beneficial if hypoxemia is present
  - Not beneficial with normal saturations
- Destination LVAD
  - Survival is currently 81% at 1 year, 70% at 2 years, 60% at 3 years, and 48% at 4 years
    - Beck, D American College of Cardiology. Jul 15, 2015

Destination Therapy: Given costs and complications, do we really want to go there?
By Debra L. Beck - American College of Cardiology. Acc.org. Accessed June 30, 2021. https://www.acc.org/latest-in-cardiology/articles/2015/07/22/14/55/cover-story-destination-therapy

Spiess, J.L. Hospice in heart failure: why, when, and what then?. Heart Fail Rev 22, 593–604 (2017).

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Pulmonary disease

- Patients will be considered to be in the terminal stage of pulmonary disease (life expectancy of 6 months or less) if they meet the following criteria. The criteria refer to patients with various forms of advanced pulmonary disease who eventually follow a final common pathway for end-stage pulmonary disease (1 and 2 should be present; documentation of 3, 4, and 5 will lend supporting documentation):
- Severe chronic lung disease as documented by both of the following:
  - 1. **Disabling dyspnea at rest, poorly responsive or unresponsive to bronchodilators, resulting in decreased functional capacity**, e.g., bed to chair existence, fatigue, and cough (documentation of forced expiratory volume in 1 second [FEV1], <30% predicted value after bronchodilator, is objective evidence for disabling dyspnea but is not necessary to obtain).
  - 2. Progression of end-stage pulmonary disease, as evidenced by increasing visits to the emergency department or hospitalizations for pulmonary infections and/or respiratory failure or increasing clinician home visits prior to initial certification (documentation of serial decrease of FEV1 >40 mL/year is objective evidence for disease progression but is not necessary to obtain).
- 3. Hypoxemia at rest on room air, as evidenced by pO2 ≤55 mmHg, or oxygen saturation ≤88%, determined either by arterial blood gases or oxygen saturation monitors (these values may be obtained from recent hospital records), OR hypercapnia, as evidenced by pCO2 ≥50 mmHg (this value may be obtained from recent [within 3 months] hospital records).
- 4. Right heart failure (RHF) secondary to pulmonary disease (Cor pulmonale, e.g., not secondary to left heart disease or valvulopathy).
- 5. Unintentional progressive weight loss >10% of body weight over the preceding 6 months.
- 6. Resting tachycardia >100/minute.

Medical guidelines for determining appropriateness of hospice referral: Disease-specific guidelines. UpToDate. https://www.uptodate.com/. Published 2021. Accessed June 29, 2021

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Refractory breathlessness

- Breathlessness persists at rest or minimal exertion, despite optimal treatment of the underlying cause
- There are currently no specific indications for the treatment of breathlessness
- Best options
  - Opioids
  - Benzodiazepines
  - +/- steroids
- Early grouped patients may benefit from GOLD guideline algorithms

Smallwood N, Le B, Currow D, Irving L, Philip J. Management of refractory breathlessness with morphine in patients with chronic obstructive pulmonary disease. Intern Med J. 2015;45(9):898-904.

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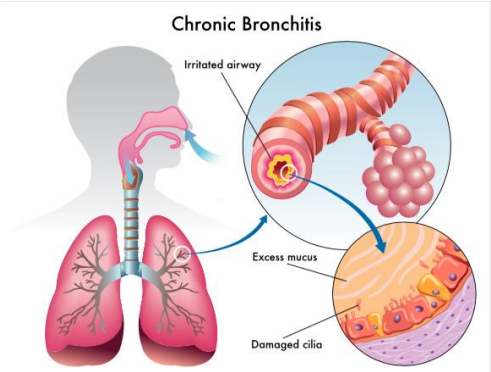
COPD Overview

- Chronic Bronchitis
  - Productive cough >3mo
  - Blue bloaters
- Emphysema
  - Abnormal/permanent enlargement of airspace
  - Distal to the terminal bronchial
  - Pink Puffers
- Asthma
  - Chronic inflammation
  - Reversible



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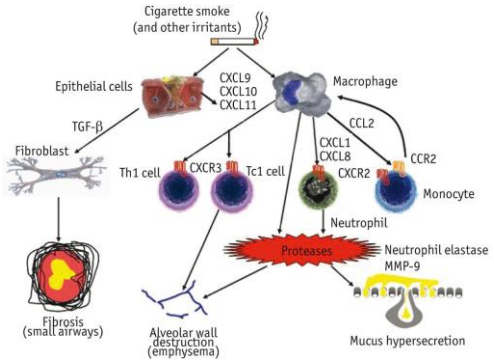
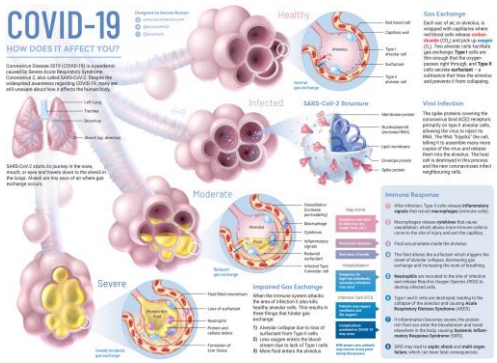
COPD v. COVID-19





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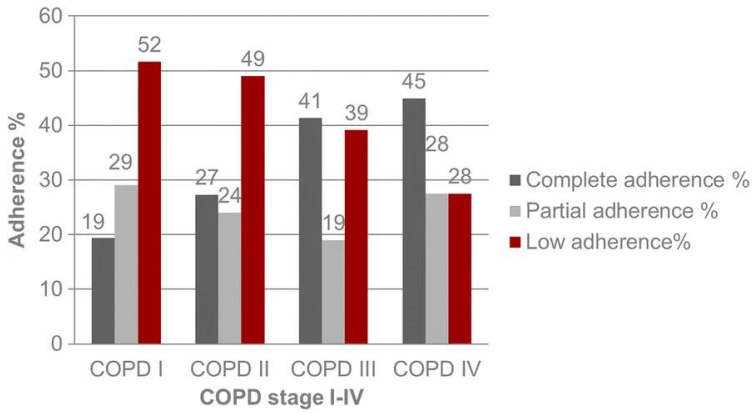
How is overall adherence?

https://bmcpulmmed.biomedcentral.com/articles/10.1186/s12890-018-0724-3



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A quick reminder

- Anticholinergics
  - Increase in cholinergic tone
  - Affects on the bronchial smooth muscle resulting in vasoconstriction
  - More specific, a blockade of acetylcholine reduces cyclic guanosine monophosphate (c-GMP)
  - M1, M3, on smooth muscle are activated by acetylcholine again resulting in bronchoconstriction
  - M2 inhibits further acetylcholine release
- Beta 2 agonists
  - Cause bronchodilation by stimulating adenyl cyclase to increase c-AMP formation
  - C-AMP mediated relaxation of bronchial smooth muscle therefore bronchodilation
  - May improve mucocillary clearance

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Deprescribing with refractory COPD

- Bronchodilators
- Inhaled glucocorticoids
- Combination therapy
- Theophylline
- Mucoactive agents

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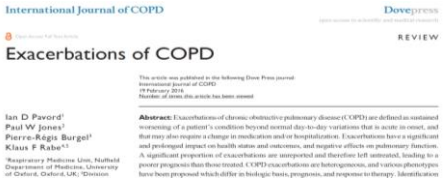
Favorites


BMC Pulmonary Medicine

RESEARCH ARTICLE Open Access

Adherence to inhaled therapy and its impact on chronic obstructive pulmonary disease (COPD)


International Journal of COPD

Dovepress

REVIEW

Exacerbations of COPD

Ian D Pavord
Paul W Jones
Pierre-Régis Burgel
Klaus F Rabe


Critical Care

REVIEW Open Access

Fundamentals of aerosol therapy in critical care

Jayesh Dhanani, John F. Fraser, Hak-Kim Chan, Jordi Rello, Jeremy Cohen and Jason A. Roberts

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Considerations

- Oral administration
  - Requires adequate fluid
  - First pass
    - Disease may impact perfusion of organs
  - Food and/or GI-motility
- Sublingual administration
  - Must be able to park drug under tongue without swallowing
  - Most formulations of drugs are not designed as SL drugs
  - Compounding might be an option
- I.V./SubQ
  - Access
  - Intermittent/continuous

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Considerations

- Rectal administration
  - Most oral dosage forms indicated as prompt/immediate release (i.e., no modified-released formulation) can be used.
  - Cautions and contraindications if appropriate
    - Neutropenia
    - Thrombocytopenia
    - Diarrhea
  - Check rectal vault for stool and remove prior to insertion of oral dosage form
  - Insert a fingers length
  - Small amount of water could be inserted by syringe to improve dissolution

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Rectal route

- Independent of gastrointestinal tract motility and rate of gastric emptying.
- Important as opioids can slow down gastric emptying and cause n/v.
- Some drug can go through first-pass while another portion will not.
- Any oral dosage form can be given rectally.
- Constipation/feces in the rectal vault must be avoided

Stevens RA, Ghazi SM. Routes of opioid analgesic therapy in the management of cancer pain. Cancer Control. 2000;7(2):132-141.

Alexander-Williams JM, Rowbotham DJ. Novel routes of opioid administration. Br J Anaesth. 1998 Jul;81(1):3-7.

Kaminsky BM, Bostwick JR, Guthrie SK. Alternate Routes of Administration of Antidepressant and Antipsychotic Medications. Ann Pharmacother. 2015;49(7):808-817.

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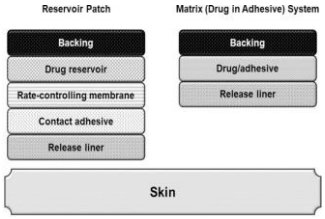
Topicals

- Nomenclature
  - Topical patches: Drug delivered to local tissue with little systemic absorption
  - Transdermal patches: Drug ultimately gets into systemic absorption
- Benefits
  - Avoid first pass
  - Minimize GI symptoms
  - Good for patients wit dysphagia
- Two different patch configurations
  - Reservoir
  - Drug-in-adhesive (Matrix)



Derry S, Wiffen PJ, Kalso EA, et al. Topical analgesics for acute and chronic pain in adults - an overview of Cochrane Reviews. Cochrane Database Syst Rev. 2017;5(5):CD008609. Published 2017 May 12.
Nalamachu S, Gudin J. Characteristics of Analgesic Patch Formulations. J Pain Res. 2020;13:2343-2354. Published 2020 Sep 22.

Clinical/therapeutic inertia

- The failure of healthcare providers to initiate or intensify therapy when indicated and recognition of the problem, but failure to act.
- Therefore to diagnose therapeutic inertia one needs to define:
  - the clinical outcomes (goals)
  - the therapy in such a way that it can be measured, and
  - the period of time in which initiation or intensification is appropriate

Why haven't I changed that?

Byrnes PD. Why haven't I changed that? Therapeutic inertia in general practice. Aust Fam Physician. 2011 Jan-Feb;40(1-2):24-8.

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