Seasonal affective disorder: Treatment

AUTHOR: David Avery, MD
SECTION EDITOR: Peter P Roy-Byrne, MD
DEPUTY EDITOR: David Solomon, MD

All topics are updated as new evidence becomes available and our peer review process is complete.

Literature review current through: **Oct 2023.**
This topic last updated: **Sep 01, 2022.**

INTRODUCTION

The term seasonal affective disorder (SAD) describes episodes of major depression, mania, or hypomania that regularly occur during particular seasons. The most prevalent form of SAD is winter depression, marked by recurrent episodes of unipolar depression that begin in the fall or winter and if left untreated, generally remit in the following spring or summer. Recognizing the disorder is important because SAD is common and associated with psychosocial impairment [1,2]. In addition, acute treatment is often effective and maintenance treatment can prevent future episodes [3]. Among patients who were recruited for randomized trials studying treatment of winter depression, nearly 60 percent had never been treated for depression [4].

This topic discusses the treatment of SAD; most of the topic is devoted to recurrent unipolar major depression with winter seasonal pattern (winter depression). The epidemiology, neurobiology, clinical features, assessment, diagnosis, and validity of SAD are discussed separately. (See "Seasonal affective disorder: Epidemiology, clinical features, assessment, and diagnosis".)

DEFINITIONS

Seasonal affective disorder — Seasonal affective disorder (SAD) is defined as recurrent episodes of major depression, mania, or hypomania with seasonal onset and remission. It is not

considered a separate mood disorder; rather, SAD is a subtype of the following mood disorders [5]:

- Unipolar major depressive disorder (major depressive disorder)
- Bipolar I disorder
- Bipolar II disorder

Thus, patients with SAD have recurrent episodes of unipolar major depression (table 1), bipolar major depression (table 2), mania (table 3), or hypomania (table 4); the essential feature is that onset and remission of the mood episodes occurs at characteristic times of the year [5].

Subsyndromal SAD consists of recurrent periods of clinically significant mood symptoms (eg, minor depression) that occur with seasonal onset and remission; however, the symptoms do not rise to the level to meet criteria for mood syndromes such as major depression and do not substantially impair functioning [1,6].

This topic focuses primarily upon recurrent unipolar major depression with seasonal pattern because it is more common than bipolar disorder with seasonal pattern [7,8]. (See "Seasonal affective disorder: Epidemiology, clinical features, assessment, and diagnosis", section on 'Clinical features'.)

The clinical features and diagnosis of unipolar major depression and bipolar disorder are discussed separately. (See "Unipolar depression in adults: Clinical features" and "Unipolar depression in adults: Assessment and diagnosis" and "Bipolar disorder in adults: Clinical features" and "Bipolar disorder in adults: Assessment and diagnosis".)

Seasonal pattern — Among patients with SAD who have recurrent unipolar major depression with seasonal pattern, two specific patterns have been described [1,5]:

- **Fall-winter onset** – Fall-winter onset SAD is also known as winter depression. Major depressive episodes begin in the fall to early winter and, if left untreated, generally remit during the following spring or summer. These episodes are generally characterized by increased sleep, increased appetite, carbohydrate craving, and weight gain, symptoms that are also found in major depression with atypical features. (See "Unipolar depression in adults: Clinical features", section on 'Atypical'.)

- **Spring-summer onset** – Spring-summer onset SAD is also known as summer depression; major depressive episodes begin in the spring or summer and, if left untreated, remit during the following fall or winter. These episodes are usually marked by typical symptoms

of depression, such as insomnia and decreased sleep, as well as decreased appetite and weight loss.

This topic focuses primarily upon winter depression because it is far more common and widely studied than summer depression. (See "Seasonal affective disorder: Epidemiology, clinical features, assessment, and diagnosis", section on 'Seasonal pattern'.)

GENERAL PRINCIPLES

Type of seasonal affective disorder — The treatment of seasonal affective disorder (SAD) depends upon the specific mood disorder that is present, and the type of seasonal pattern (see 'Seasonal pattern' above):

- Unipolar major depression (table 1)
  - Fall-winter onset (see 'Winter depression' below)
  - Spring-summer onset (see 'Summer depression' below)
- Bipolar disorder (see 'Bipolar disorder with seasonal pattern' below)

This topic focuses primarily upon winter depression, which is marked by regularly recurring unipolar depressive episodes that begin in the fall or winter and, if left untreated, generally remit during the following spring or summer. Winter depression is the most prevalent form of SAD.

Severity of winter depression — Treatment of winter depression is influenced by severity of illness:

- **Severe illness** – Severe major depression is characterized by seven to nine depressive symptoms (table 1) that are present nearly every day and are seriously distressing, and is also marked by obvious impairment of daily functioning [5]. Patients with severe major depression who are assessed with the self-administered Patient Health Questionnaire – Nine Item (PHQ-9) (table 5) typically score 20 or more points, and often report suicidal ideation and behavior. In addition, severely ill patients are more likely to experience complications, such as psychotic features or catatonic features, and are often referred to psychiatrists for management.
- **Mild to moderate illness** – Patients with major depression who are mildly to moderately ill often have only five or six depressive symptoms (table 1) (at least five are necessary to make the diagnosis) [5]. Symptoms are distressing but manageable, and functional

impairment is not necessarily obvious to others. Patients with mild to moderate major depression who are assessed with the self-administered PHQ-9 (table 5) typically score less than 20 points, and often deny suicidal behavior. In addition, patients are unlikely to experience complications, such as psychotic features or catatonic features, and are typically managed by primary care clinicians or mental health clinicians other than psychiatrists.

Assessing prior response to pharmacotherapy — Caution is warranted in assessing prior responses to antidepressant medications in patients with winter depression; a previous "response" in the spring or summer may have been a placebo response rather than a true medication response. In placebo-controlled antidepressant trials, patients with major depression (not selected for the presence or absence of seasonal pattern) are less likely to have a placebo response from November through February compared with other times of the year [9]. As an example, a study examined patients with depressive syndromes (n = 432) who were not selected for seasonality and who received a 10-day course of placebo as a "washout" or lead-in to a randomized trial [10]. Response to placebo occurred in fewer patients during the late fall and winter months than the rest of year (15 versus 25 percent).

Monitoring — For patients with SAD who have recurrent unipolar major depression with seasonal pattern, we suggest monitoring response to treatment in manner similar to that for patients with nonseasonal depression. (See "Unipolar depression in adults and initial treatment: General principles and prognosis", section on 'Adherence to treatment'.)

Duration of an adequate trial — Patients with winter depression who receive bright light therapy usually respond within one to four weeks of starting treatment [11-13]. However, a longer course of therapy may be necessary before deciding that the treatment has failed. (See 'Administration' below.)

The duration of an adequate trial of an antidepressant drug for unipolar major depression is discussed separately. (See "Unipolar major depression in adults: Choosing initial treatment", section on 'Duration of an adequate trial'.)

Time-limited psychotherapies, such as cognitive-behavioral therapy or interpersonal psychotherapy, are generally administered until patients have received the entire course of therapy. As an example, cognitive-behavioral therapy adapted for SAD consists of two sessions per week for six weeks [14].

Managing treatment resistance — Patients with winter depression often do not respond to first line treatment. General steps to take for treatment resistance include [12]:

- Verifying the diagnosis
- Verifying adherence with treatment at an adequate dose, for an adequate duration
- Looking for factors that can lead to nonresponse:
  - Psychiatric comorbidity, such as undisclosed or unrecognized anxiety disorders, substance use disorders, or personality disorders.
  - General medical comorbidity.
  - Medication-induced depression (eg, depression secondary to glucocorticoids). (See "Unipolar depression: Pathogenesis", section on 'Medications'.)
  - Rapid metabolism of drugs due to genetic polymorphisms of hepatic enzymes – Measuring drug serum concentrations can help determine if larger drug doses are required.
  - Cataracts that interfere with light therapy.
  - Psychosocial problems (eg, occupational or interpersonal difficulties).

For patients with winter depression who do not respond to first line treatment, despite verifying the diagnosis and adherence and ruling out factors that can cause nonresponse, we recommend the next step treatments that are discussed below. (See 'Approach to acute treatment' below.)

Referral — Winter depression can be managed by primary care clinicians, provided they are comfortable prescribing artificial light. However, treatment resistant patients and patients with severe episodes (eg, suicidal ideation and behavior) are typically referred to mental health clinicians, such as psychiatrists [15].

WINTER DEPRESSION

Winter depression is characterized by recurrent episodes of unipolar major depression that begin in the fall to early winter, and if left untreated, generally remit during the following spring or summer. Winter depression is the most prevalent type of seasonal affective disorder (SAD). (See 'Definitions' above.)

Approach to acute treatment — We suggest that acute treatment of winter depression proceed according to the sequence described in the subsections below. Patients initially receive

first line therapy and progress through each step until they respond. The duration of an adequate treatment trial is discussed elsewhere in this topic. (See 'Duration of an adequate trial' above.)

Following response, treatment continues for at least two weeks beyond the usual spring or summer offset of winter depression. (See 'Maintenance treatment' below.)

The primary treatments suggested in the subsections below, either as monotherapy or combination therapy, include:

- Antidepressants
- Light therapy
- Psychotherapy

In addition, we encourage patients to incorporate all of the following adjunctive interventions throughout their entire course of acute (and maintenance) treatment:

- Sleep hygiene (table 6)
- Daily walks outside, even on cloudy days
- Aerobic exercise
- Enhanced indoor lighting with regular lamps and fixtures
- Dawn simulation (see 'Dawn simulation' below)

Sleep hygiene (table 6), including a regular sleep-wake cycle, is important for treating SAD because hypersomnia and insomnia are common in SAD. As part of sleep hygiene, creating a regular light-dark cycle may be important. Minimizing light exposure, especially blue light from computer monitors and televisions, in the late evening (eg, during the two hours prior to the desired time of sleep onset) may facilitate sleep onset.

Evidence for the efficacy of acute treatments for winter depression is discussed elsewhere in this topic. (See 'Efficacy of acute treatment' below.)

First line — For patients with winter depression, we suggest an antidepressant drug plus artificial light (bright light therapy, dawn simulation, or both) as first line treatment. However, antidepressants alone are a reasonable alternative. The specific choice depends upon factors such as prior treatment history, severity of illness (see 'Severity of winter depression' above), safety, tolerability, cost, and patient preference. As an example, more severely ill patients may benefit from pharmacotherapy plus both bright light therapy and dawn simulation, rather than just one form of light therapy. Some patients prefer antidepressant monotherapy because of relative contraindications to bright light therapy (eg, retinal disease or use of photosensitizing

medications) or because bright light therapy is inconvenient and tedious [16]. Dawn simulation is appealing because it is administered at the end of the night, while patients are still asleep; however, the device may wake a sleeping partner. First line treatment with pharmacotherapy plus light therapy or pharmacotherapy alone is consistent with multiple treatment guidelines (eg, American Psychiatric Association and World Federation of Societies for Biological Psychiatry) [12,17-19].

The initial drug of choice for winter SAD is typically a selective serotonin reuptake inhibitor (SSRI) [20], consistent with initial treatment in the general population of patients with unipolar major depression. However, other types of antidepressants can be used instead of SSRIs [8]. As an example, bupropion is a good choice for patients who want to stop smoking tobacco or want to avoid SSRI side effects, such as weight gain or sexual dysfunction. In addition, bupropion has demonstrated efficacy in preventing recurrences of winter depression (see 'Antidepressants' below). Additional information about the general treatment of unipolar major depression, including the choice of drug, doses, and side effects, is discussed separately. (See "Unipolar major depression in adults: Choosing initial treatment", section on 'Antidepressant pharmacotherapy'.)

For patients with mild to moderate winter depression, light therapy (bright light therapy and/or dawn simulation) alone is also a reasonable alternative as first line therapy, and is consistent with multiple treatment guidelines (eg, American Psychiatric Association and Canadian Network for Mood and Anxiety Treatments) [12,13,17,18,21]. Patients may prefer light therapy alone because it avoids medication safety risks and side effects. However, light therapy alone is generally regarded as inadequate for severe episodes of winter depression. The administration, safety, and side effects of bright light therapy are discussed elsewhere in this topic (see 'Bright light therapy' below), as is the administration of dawn simulation (see 'Dawn simulation' below).

Second line — Winter depression often does not respond to first line treatment with an antidepressant drug plus light therapy. For these patients, the next step is to verify the diagnosis and adherence, and to address factors that can cause nonresponse (see 'Managing treatment resistance' above). If this step is completed and the patient remains unresponsive, we suggest switching antidepressants and continuing light therapy. If patients do not respond to one drug switch, the antidepressant is switched at least one or two more times. Switching antidepressants for managing treatment resistant depression is consistent with multiple practice guidelines (eg, the American Psychiatric Association, Canadian Network for Mood and Anxiety Treatments, and United Kingdom National Institute of Health and Clinical Excellence guidelines) [8,22-26]. Choosing an alternative antidepressant and the process of switching antidepressants are discussed separately. (See "Unipolar depression in adults: Choosing

treatment for resistant depression", section on 'Next step treatment' and "Switching antidepressant medications in adults".)

For patients with winter depression who partially respond to first line treatment with antidepressants alone, we suggest continuing the drug and adding artificial light (bright light therapy, dawn simulation, or both), as second line treatment. For patients who respond minimally or not all to first line treatment with antidepressants alone, we suggest switching the drug and adding light therapy.

For patients with winter depression who do not respond satisfactorily to first line treatment with light therapy alone, we suggest continuing light therapy and adding an antidepressant drug as second line treatment.

Third line — For patients with winter depression who do not respond satisfactorily to first and second line therapies, we suggest adding psychotherapy as third line treatment. Adjunctive psychotherapy may increase adherence and reduce distress. We typically use cognitive-behavioral therapy (CBT); however, other psychotherapies (eg, interpersonal psychotherapy) are reasonable alternatives. The availability of psychotherapy is often limited, especially CBT that is specifically adapted for SAD.

Other options — For patients with severe winter depression (see 'Severity of winter depression' above) who do not respond to first, second, and third line therapies, we suggest electroconvulsive therapy (ECT). One review noted that among patients with SAD, ECT was required for approximately 2 percent [1].

Numerous studies have demonstrated the effectiveness of ECT for treating severe major depression [27]. Although no high-quality studies have evaluated ECT in patients with winter depression, the indications for using ECT can be extrapolated from nonseasonal depressive episodes and include nonresponse to other established treatments, high suicide risk, psychotic features, and previous positive response to ECT [28]. (See "Unipolar major depression in adults: Indications for and efficacy of electroconvulsive therapy (ECT)".)

Negative air ionization [29-33], exogenous melatonin [34,35], or the melatonergic antidepressant agomelatine [36] may perhaps help patients with SAD, but these treatments are generally not used. Although some studies suggest that blue light therapy can be helpful [37-39], it remains an investigational approach because of concerns about retinal damage [40-42].

Efficacy of acute treatment — A limited number of head-to-head randomized trials have compared the efficacy of different acute treatments in patients with winter depression.

Antidepressants plus light therapy — Prescribing an antidepressant plus bright light therapy for SAD (winter depression) is common [29,43] and is based upon indirect evidence from randomized trials in patients with nonseasonal major depression; these trials have shown that antidepressants plus bright light therapy are superior to monotherapy with an antidepressant or bright light therapy. (See "Unipolar depression in adults: Investigational and nonstandard treatment", section on 'Bright light therapy'.)

Antidepressants — Indirect evidence that antidepressant drugs are efficacious for unipolar major depression with seasonal pattern includes the many randomized trials conducted in the general population of patients with unipolar major depression. As an example, a meta-analysis of patient level data from 37 randomized trials (n >8400 patients with major depression) compared either fluoxetine (modal dose 20 mg per day) or venlafaxine (modal dose range 75 to 150 mg per day) with placebo for six weeks; remission occurred in more patients who received active drug than placebo (43 versus 29 percent) [44]. Additional information about the efficacy of antidepressants for the general treatment of unipolar major depression is discussed separately. (See "Unipolar major depression in adults: Choosing initial treatment", section on 'Efficacy of antidepressants'.)

Randomized trials conducted in patients with SAD (winter depression) also indicate that antidepressant drugs can be beneficial, at doses similar to those used for nonseasonal depression [45]. Clinicians can expect that response will occur in approximately 60 percent of patients:

- An eight-week trial compared sertraline (50 to 200 mg/day) with placebo in 102 patients with SAD and found that response (much or very much improved) was greater in patients who received sertraline than placebo (62 versus 46 percent) [16]. However, side effects caused by sertraline included nausea, vomiting, diarrhea, insomnia, and dry mouth.

- A five-week trial compared fluoxetine (20 mg/day) with placebo in patients with SAD (n = 66) and found that response (reduction of baseline symptoms ≥50 percent) occurred in more patients treated with fluoxetine than placebo (59 versus 34 percent) [46]. The most frequent side effects in patients receiving fluoxetine were headache and flu-like symptoms.

- A six-week randomized trial compared fluoxetine (20 to 40 mg/day) with moclobemide (300 to 450 mg/day) in patients with depressive disorders (n = 147); SAD was present in 29 of the patients with depressive disorders [47]. Response (reduction of baseline symptoms ≥50 percent) to either fluoxetine or moclobemide was comparable in patients with SAD

and patients with nonseasonal depression (66 and 60 percent). Among patients with SAD, response to fluoxetine or moclobemide was comparable.

In addition, randomized trials that compared antidepressants with bright light therapy in patients with SAD found that efficacy was comparable. Although interpretation of the results in both studies was complicated by lack of a group receiving no active treatment, the findings nevertheless suggested that antidepressants can be effective for SAD:

- An eight-week trial compared fluoxetine (20 mg/day) plus sham light therapy (100 lux for 30 minutes each day) with placebo pill plus bright light therapy (10,000 lux for 30 minutes each day) in 96 patients with SAD [48]. Response (reduction of baseline symptoms ≥50 percent) in the two groups was identical (67 percent of patients). Sleep disturbance, agitation, and palpitations occurred more often with fluoxetine than bright light.

- A five-week trial compared fluoxetine (20 mg/day) plus sham light therapy (100 lux for two hours each day) with placebo pill plus bright light therapy (3000 lux for two hours each day) in 40 patients with SAD [49]. Response (reduction of baseline symptoms ≥50 percent) to fluoxetine or bright light therapy was comparable (65 and 70 percent of patients).

Although other studies found that antidepressants were not helpful for SAD, the lack of benefit may have been due to methodologic problems:

- Three randomized trials [46,48,49] were included in a systematic review [50] that compared second-generation antidepressants (eg, SSRIs) with control conditions in patients with SAD; the review concluded that there was poor evidence for the efficacy of any second-generation antidepressant in treating SAD. However, the investigators excluded the sertraline trial discussed above because it included patients whose underlying condition was bipolar disorder (5 percent of the sample) [16]. Also, the systematic review emphasized that in one of the trials discussed above, which compared fluoxetine with placebo [46], the continuous outcome measure failed to show a statistically significant difference between the two groups; nevertheless, the categorical outcome measure of response did show a statistically significant difference.

- A three-week randomized trial compared moclobemide (400 mg per day) with placebo in patients with SAD (n = 34) [51]. Improvement of depressive symptoms in the two groups was comparable. However, the negative results may have been due to the trial's short duration and small sample size, as well as the relatively low dose of moclobemide.

Bright light therapy — Several randomized trials indicate that artificial bright white light is efficacious for patients with SAD, and clinicians can expect that response or remission will occur

in approximately 60 percent of patients [30,52,53]. As an example:

- A meta-analysis of eight trials (n = 360 patients with SAD) compared bright light therapy with control conditions and found a significant, large clinical effect favoring bright light [54]. In one of the biggest and longest (four weeks) trials, which compared bright light therapy (6000 lux; n = 33) with placebo (deactivated negative ion generator; n = 31), remission occurred in more patients who received light therapy than placebo (61 versus 32 percent) [53].

- A subsequent meta-analysis, using a different set of eight trials (n = 343 patients with SAD), found a significant, moderate clinical effect favoring bright light over control conditions [55]. One of the more recent trials (n = 37), lasting three weeks, compared bright light therapy (10,000 lux for 30 minutes) with low flow rate negative air ionization (2 x 10^{11} ions/second for 93 minutes) [30]. Response (reduction of baseline symptoms ≥50 percent) occurred in more patients treated with bright light therapy than low flow negative ions (12/19 versus 3/18 [63 versus 17 percent]).

Among patients with SAD, the factor that appears to be most consistently associated with a good response to bright light therapy is hypersomnia [29,56-58]. Other factors that may be associated with positive responses include hyperphagia (especially carbohydrate craving) and a less severe symptom profile at baseline [29,56,58-60].

Response to bright light therapy is not specific to SAD; bright light therapy can be efficacious for nonseasonal depressive syndromes [29,54,61-64]. However, three observational studies suggest that response to bright light therapy is greater in patients with SAD than nonseasonal depression [61]. The efficacy of bright light therapy for nonseasonal unipolar depression is discussed separately. (See "Unipolar depression in adults: Investigational and nonstandard treatment", section on 'Bright light therapy'.)

In addition, augmentation with bright light therapy administered at midday (eg, between 12:00 PM and 2:30 PM) may be efficacious for treatment of nonseasonal bipolar depression. (See "Bipolar major depression in adults: Investigational and nonstandard approaches to treatment", section on 'Bright light therapy'.)

Time of day — Several randomized trials indicate that bright light therapy for SAD is more beneficial if it is administered early in the morning rather than later in the morning or in the evening [53,57,65]:

- A pooled analysis of patient level data from 29 studies (n = 332 patients) found that remission occurred in more patients who received light therapy in the morning, compared

with therapy at midday or in the evening (53 versus 32 and 38 percent) [59]. In addition, exposure in both the morning and evening provided no additional benefit over morning exposure alone.

- A subsequent two-week trial compared morning bright light therapy (initiated 10 minutes after awakening) with evening bright light therapy (initiated two to three hours before bedtime) [31]. Patients (n = 85) received 10,000 lux for 30 minutes per day in each treatment session. Remission occurred in more patients who received light therapy in the morning than the evening (54 versus 33 percent).

- Another two-week trial compared morning bright light therapy (2500 lux, 6 to 8 AM each day) with evening bright light therapy (7 to 9 PM) in 51 patients [66]. Improvement was greater with morning light therapy than evening light therapy.

Dawn simulation — Several randomized trials have found that dawn simulation is beneficial for winter depression, and the benefit may be comparable to bright light therapy [67]. Clinicians can expect that response or remission will occur in approximately 65 percent of patients:

- A meta-analysis of five randomized trials compared dawn simulation with control conditions (eg, dim red light) in 133 patients with SAD [54]. Improvement was greater with dawn simulation and the benefit was clinically moderate to large. As an example, the largest trial (n = 62) found that remission occurred in more patients who received dawn simulation (90 minutes dawn signal, incandescent light peaking at 250 lux) than dim red light (90 minutes) (68 versus 48 percent) [68].

- In a subsequent three-week trial, 58 patients with winter depression were randomly assigned to dawn simulation, bright light therapy (10,000 lux for 30 minutes), or low flow rate negative air ionization (2 x 10^{11} ions/second) [30]. The dawn simulator initially delivered 0.0003 lux to patients as they slept; the intensity of light then progressively increased to 250 lux over 93 minutes. Response, defined as reduction of baseline symptoms ≥50 percent, occurred in more patients treated with dawn simulation or bright light therapy, compared with low flow rate ions (13/21 and 12/19 versus 3/18 patients [62 and 63 versus 17 percent]).

In addition, a pooled analysis of three randomized trials compared dawn simulation with dim light (placebo) in patients with SAD and hypersomnia (n = 50), and found that dawn simulation ameliorated difficulty awakening and morning drowsiness [69].

Psychotherapy — Many randomized trials in patients with nonseasonal major depression provide indirect evidence that for patients with SAD, adjunctive psychotherapy is beneficial. The

evidence that psychotherapy plus pharmacotherapy is efficacious for the general treatment of unipolar major depression is discussed separately. (See "Unipolar major depression in adults: Choosing initial treatment", section on 'Efficacy of antidepressants plus psychotherapy' and "Unipolar depression in adults: Choosing treatment for resistant depression", section on 'Psychotherapy'.)

In addition, there is direct evidence that psychotherapy is effective for patients with unipolar major depression with seasonal pattern (winter depression). Multiple randomized trials from the same research group have found that CBT, adapted for SAD, can be helpful; patients learn to challenge dysfunctional thoughts about winter and to change problematic behaviors (eg, social isolation). Clinicians can expect that remission will occur in approximately 50 percent of patients:

- A six-week trial compared CBT with bright light therapy in patients (n = 177) with winter SAD [14]. CBT was administered twice weekly in 90-minute group sessions; bright light therapy consisted of 10,000 lux light, typically used for 30 to 60 minutes per day. In addition, 25 percent of the patients continued antidepressant medications that had been started prior to the study. Remission was nearly identical in the two groups (approximately 47 percent of patients), and none of the patients discontinued treatment due to side effects. However, fewer patients appeared to accept CBT; discontinuation of CBT or light therapy occurred in 15 and 1 percent of patients.

  After completion of the trial, patients were instructed to resume their study treatment (CBT skills or light therapy) during the next autumn and winter. Follow-up during the first year after treatment found that recurrence of depression in the next winter was comparable in patients who were treated with CBT or bright light therapy (29 and 25 percent) [70]. However, in the second year of follow-up (two winters after treatment), relapse occurred in fewer patients who had received CBT than light therapy (27 versus 46 percent); only 31 percent of the group initially treated with light therapy had resumed light therapy for the second winter.

  The finding that CBT is effective for maintenance treatment of SAD is consistent with randomized trials in the general population of patients with unipolar major depression, which compared CBT with antidepressants; improvement posttreatment was comparable, but subsequent to discontinuation of treatments, there were fewer recurrences in patients who were acutely treated with CBT than antidepressants. (See "Unipolar depression in adults: Continuation and maintenance treatment", section on 'Relapse/recurrence in the absence of treatment'.)

- A six-week trial randomly assigned patients (n = 61) to one of four treatments: group CBT (twice weekly sessions, 90 minutes/session), bright light therapy (10,000 lux for 90 minutes daily), group CBT plus light therapy, or a waiting list (control) [71]. Improvement was greater with each of the three active treatments compared with the waiting list, and remission occurred in more patients who received combination therapy than controls (11/15 versus 3/15 patients [73 versus 20 percent]).

Adjunctive interventions — Several adjunctive interventions are encouraged throughout acute and maintenance treatment, on the basis of the following evidence [11]:

- **Sleep hygiene –** Sleep hygiene (table 6), including a regular sleep-wake cycle, was encouraged for all patients in many of the randomized trials that studied light therapy [31,53,57,66] (see 'Bright light therapy' above). As part of sleep hygiene, creating a regular light-dark cycle may be important. Winter depression is often characterized by phase-delayed circadian rhythms relative to sleep, which can cause initial insomnia. Excessive light during the two hours prior to the desired time of sleep onset may delay circadian rhythms and cause initial insomnia and difficulty awakening. Minimizing light exposure in the late evening, especially blue light from computer monitors and televisions, facilitates sleep onset and helps shift circadian rhythms counterclockwise [72]. Circadian rhythms and SAD are discussed separately. (See "Seasonal affective disorder: Epidemiology, clinical features, assessment, and diagnosis", section on 'Pathogenesis'.)

- **Daily walks outside** – A prospective observational study of patients with SAD compared the benefits of natural light obtained by daily walks outside each morning for 60 minutes (n = 20 patients) with the benefits of artificial light therapy administered each day with a 2800 lux light box for 30 minutes per day (n = 8 patients) [73]. The study was conducted during winter and lasted three weeks. Improvement was greater in patients who walked outside. However, 2800 lux is generally regarded as an insufficient dose for bright light therapy (see 'Administration' below). In addition, walking outside may include elements of the psychotherapy called behavioral activation.

  Daily walks outside may be beneficial even on cloudy days. The light intensity of different environments is approximately as follows [3,12]:

  - Bright midday sun – 50,000 to 100,000 lux
  - Cloudy day – 1000 to 5000 lux
  - Indoor office lighting – 500 lux
  - Indoor home lighting – 250 lux

By comparison, standard light boxes for administering bright light therapy emit 10,000 lux. (See 'Administration' below.)

- **Aerobic exercise** – Open-label, randomized trials suggest that aerobic exercise may help with SAD:

  - A randomized trial compared exercise (stationary bicycle for one hour each day) with no treatment in patients with winter depression (n = 18) and found that improvement was greater in the group that exercised [74].

  - An eight-week trial during late fall and early winter compared aerobic exercise conducted in normal light (400 to 600 lux) with relaxation training conducted in dim light [75]. Aerobic exercise occurred two to three times per week, with each session lasting one hour; relaxation training occurred once per week for one hour. The study subjects were relatively healthy, but measurable depressive symptoms were present and subsyndromal SAD was identified in roughly 40 percent of the subjects. Analyses of the subjects (n = 51) who completed the trial found that improvement was greater with aerobic exercise than relaxation training.

  - A subsequent eight-week trial during late fall and early winter compared aerobic exercise conducted in bright light (2500 to 4000 lux) with stretching and relaxation training conducted in bright light [76]. Both interventions occurred twice per week and lasted 45 minutes. Although the study subjects were relatively healthy, many patients manifested measurable depressive symptoms and subsyndromal SAD was present in approximately 40 percent. Analyses of the subjects (n = 69) who completed the trial showed that improvement of depressive symptoms was greater with aerobic exercise than stretching/relaxation.

Maintenance treatment — By definition, winter seasonal depression is a recurrent illness. Maintenance treatment is typically indicated to prevent recurrences, especially among patients who suffer suicidal ideation and behavior, or impairment that threatens occupational or interpersonal functioning [11]. (See "Unipolar depression in adults: Continuation and maintenance treatment", section on 'Indications'.)

The same treatment that was successfully used acutely is typically selected for maintenance treatment (eg, antidepressants and/or light therapy). Although it is theoretically possible to use sequential treatment, in which acutely ill patients are successfully treated with one therapy (eg, bright light therapy), and then administered a different treatment (eg, pharmacotherapy) [77,78], we never use this approach.

In addition, we encourage patients to incorporate all of the following adjunctive interventions throughout their entire course of maintenance (and acute) treatment:

- Sleep hygiene (table 6)
- Daily walks outside, even on cloudy days
- Aerobic exercise
- Enhanced indoor lighting with regular lamps and fixtures
- Dawn simulation (see 'Dawn simulation' below)

Evidence for the efficacy of adjunctive treatments for winter depression is discussed elsewhere in this topic. (See 'Efficacy of acute treatment' above.)

Antidepressants — Following response to acute treatment with antidepressant medications, either as monotherapy or in conjunction with light therapy, antidepressants are continued for at least two weeks beyond the usual spontaneous offset of winter depression [11]. Based upon randomized trials in patients with nonseasonal unipolar major depression, premature discontinuation of pharmacotherapy can precipitate relapse. (See "Unipolar depression in adults: Continuation and maintenance treatment", section on 'Compared with placebo'.)

Maintenance treatment for winter depression that responds to antidepressants includes the following two approaches [20]:

- **Seasonal pharmacotherapy** – The antidepressant is tapered and discontinued in the spring or summer, and resumed in the fall at least four weeks prior to the expected onset of symptoms (based upon prior history). Evidence supporting the use of seasonal pharmacotherapy includes three randomized trials that compared bupropion (150 or 300 mg per day) with placebo in patients (total n = 1042) with a history of winter depression [4,79]. Patients were enrolled during autumn while still euthymic and treated until spring. Relapse during treatment occurred in fewer patients treated with bupropion than placebo (15 versus 27 percent). However, discontinuation of treatment due to adverse effects was nearly two times greater with bupropion than placebo (9 and 5 percent of patients). Side effects that occurred more often with bupropion than placebo included headache, insomnia, and nausea [79].

  Following the end of treatment, recurrences of depression in spring and summer were comparably low for the groups that were treated with bupropion or placebo (3 and 2 percent) [4].

  For patients with winter depression who discontinue their antidepressant in the spring/summer and then resume it in the fall, education about the symptoms of major

depression and SAD may help patients detect prodromal signs of recurrence and begin treatment prior to onset of a full-blown major depressive episode [80]. The symptoms of major depression (table 1) and SAD are discussed separately. (See "Unipolar depression in adults: Clinical features", section on 'Symptoms' and "Seasonal affective disorder: Epidemiology, clinical features, assessment, and diagnosis", section on 'Symptoms'.)

- **Continuous pharmacotherapy** – Antidepressants are maintained all year long. Evidence supporting the use of continuous treatment includes randomized trials conducted in the general population of patients with unipolar major depression. (See "Unipolar depression in adults: Continuation and maintenance treatment", section on 'Antidepressant medications'.)

The choice between seasonal pharmacotherapy and continuous pharmacotherapy depends upon past history and patient preferences. As an example, some patients will opt to discontinue their antidepressant to avoid the side effects, inconvenience, and cost of daily medication. By contrast, patients may want to maintain the drug all year if there is a prior history of having discontinued the drug during the spring and summer and relapsing shortly thereafter. Year-round maintenance pharmacotherapy is also indicated for patients with severe winter depressive episodes. (See 'Severity of winter depression' above.)

Euthymic patients who are not currently treated with antidepressants may present to clinicians and report a history consistent with winter depression. For these patients, antidepressants can be started either immediately or in the fall, in an attempt to prevent recurrence of winter depression.

Light therapy — Following response to acute treatment with light therapy, either as monotherapy or in conjunction with pharmacotherapy, light therapy is continued for at least two weeks beyond the usual spontaneous offset of winter depression; premature discontinuation of light therapy (bright light therapy or dawn simulation) can precipitate relapse [12,43]. The usual offset of winter depression occurs when sufficient daily light exposure is available to patients through other sources, such as spring or summer sunlight. Light therapy is discontinued abruptly, without tapering [29].

For patients who respond to bright light therapy and continue treatment until the usual spontaneous offset of winter depression, it is reasonable to experiment with shorter daily exposures [7,11]. As an example, patients may decrease exposure from 30 to 25 or 20 minutes per day. However, if patients begin to decompensate, they should resume the duration that was initially effective.

Patients with winter depression who respond to light therapy typically discontinue treatment for the summer. However, if patients become depressed during a period of rainy or cloudy weather, light therapy should be resumed and then discontinued following remission [29].

For patients who discontinued light therapy in the spring or summer, we suggest resuming treatment in the fall, two to four weeks before the usual onset of winter depression [20,29]. Light treatment can be restarted earlier if prodromal winter depression symptoms occur earlier than usual.

Low quality evidence supports using light therapy as prophylaxis for winter depression:

- One randomized trial (n = 12 patients with SAD) compared bright light therapy started in late summer while patients were euthymic, with bright light therapy initiated after onset of prodromal depressive symptoms [81]. Light therapy in both groups was administered at a dose of 3300 lux for one hour each day, until early spring. Depressive symptom rating scale scores during fall and winter showed a significant, clinically large effect favoring the group that started light therapy while euthymic. Methodologic problems with this study include the small number of patients. In addition, the study evaluated the same intervention in two types of patients (one group euthymic and the other group with prodromal symptoms); a conventional randomized trial assigns the same type of patients to different types of interventions [82].

- Another randomized trial compared bright light therapy with no light therapy in patients with SAD who completed the study (n = 23) [83]. Patients were enrolled during the fall while still euthymic; bright light therapy consisted of 2500 lux administered 30 minutes per weekday with a visor. Recurrence of depression during treatment occurred in fewer patients who received bright light therapy than controls (36 versus 78 percent). Methodologic problems with this study include the small number of patients; in addition, the study used a per protocol (completer) analysis, rather than an intent to treat analysis [82].

Bright light therapy — The parameters that are used to describe light therapy include intensity (lux), wavelength, time of day for exposure, and duration of daily exposure [12]. The effect of bright light therapy is probably mediated through the eyes rather than the skin [84].

Administration — Bright light therapy is administered on a daily basis according to the following protocol [11-14,19,29,53,80,84-87]:

- **Device** – The standard and best studied devices for administering bright light therapy are 10,000 lux light boxes that use fluorescent bulbs emitting white light. (Incandescent light

poses risks to the cornea and retina.) Although light boxes emitting less than 10,000 lux can be used, longer exposures are required. Commercially available fixtures are recommended over homemade devices, due to difficulty in measuring light intensity, and to reduce electrical hazards and other risks (eg, corneal and eyelid burns) associated with poor-quality construction. In addition, patients are advised to seek light boxes designed to protect the eyes with features such as light dispersion and screens that filter out ultraviolet rays. Ultraviolet light is not necessary for the therapeutic effect of bright light therapy and should be avoided to reduce potential risks to the skin or eyes.

- **Positioning and distance** – The light box should be positioned at a distance that enables patients to receive 10,000 lux while seated and facing the box, with the light projected downward to minimize aversive glare. Commercial light box instructions should give the distance at which 10,000 lux is achieved, which is typically approximately 40 to 80 cm (16 to 31 inches). The distance from the eyes to the light box is important because light intensity follows the inverse square law; if the distance between the eye and the light source is doubled, the intensity of light that is received drops to one-quarter of the original intensity.

- **Time of day** – Bright light therapy generally commences in the early morning, soon after awakening (eg, 7:00 AM). Patients should administer light therapy at approximately the same time each day, including weekends, holidays, and vacations. Most light therapy studies required a regular time for light treatment to start and thus stipulated a regular wake-up time for the subjects. A regular wake-up time may be important for optimal effectiveness of the bright light treatment. The effectiveness of variable timing of the bright light therapy is unknown.

  If morning bright light treatment alone is not fully effective after two to four weeks of treatment, adding evening (eg, 8:00 PM) bright light treatment may be helpful. A minority of patients with SAD may benefit from bright light in the evening rather than morning bright light [80]. The self-report version of the Morningness-Eveningness Questionnaire is in the public domain and can be used to determine the best time of day to commence bright light therapy. However, the questionnaire is generally used for research rather than standard clinical care.

- **Duration of exposure** – The duration of early morning exposure to standard light boxes emitting 10,000 lux is generally 30 minutes/day, but some studies have used 45 or 60 minutes per session. However, no head-to-head trials have compared the efficacy of different lengths of exposure.

For patients who do not respond to initial treatment with 30 minutes/day, some studies have increased the duration of exposure to 45 minutes/day, and if nonresponse persists, to 60 minutes/day (algorithm 1). However, no studies have compared the efficacy of a fixed dose of 30 minutes/day with an increasing dose, and the potential benefit of increasing exposure must be weighed against the added time burden.

If evening bright light therapy is added, the duration of evening exposure is generally 30 to 60 minutes. Patients who switch from morning to evening exposure continue the same length of exposure.

Bright light boxes emitting light that is less than 10,000 lux require longer exposures. As an example, morning light therapy with a 2500 lux light box requires an exposure of two hours to achieve the same benefit of 10,000 lux for 30 minutes.

- **Looking at the device** – The eyes are open during bright light therapy, with light visible at least in the peripheral vision. Patients can glance at the box but should avoid staring directly at the light.

- **Patient activity** – During bright light therapy, patients can engage in any activity, such as reading, eating, watching television, or working on a computer. Although patients are typically seated, it is reasonable to place the light box on a stand so that patients can engage in other activities, such as riding a stationary bicycle.

Safety — Light therapy is generally safe [17-19,61], and there are no absolute medical contraindications [19]. If light therapy is indicated and there is concern about the safety of the bright light therapy, dawn simulation (increasing to 250 lux) is a reasonable alternative. (See 'Dawn simulation' below.)

Although retinal damage is a theoretical adverse effect of bright light therapy based upon some rodent studies [88], there is little to no evidence that bright light therapy causes retinal damage in humans [19,89]. Given that the light intensity of bright light therapy (eg, 10,000 lux) is much less than the intensity of bright midday sun (eg, 50,000 to 100,000 lux) [3,12], the potential for retinal toxicity is minimal [29]. In a prospective study of patients (n = 17) with winter depression, whose eyes were examined and tested at baseline and then periodically during bright light therapy in the fall and winter months for three to six years, no ocular abnormalities were observed [90].

Nevertheless, for patients undergoing bright light therapy, we recommend consultation with an ophthalmologist at baseline and annually thereafter in the following situations [12,19,29,80,91,92]:

- Preexisting ophthalmological conditions (eg, cataract, glaucoma, macular degeneration, retinal detachment, or retinitis pigmentosa)
- Systemic diseases (eg, diabetes) that can involve the retina or render the eyes vulnerable to phototoxicity
- Family history of ophthalmological disease
- Use of photosensitizing drugs (eg, hydrochlorothiazide, lithium, tetracycline, or tricyclic antidepressants)

In addition, caution using bright light therapy is warranted for patients who have photosensitive skin [12,19,91,92]. Light induced migraine headaches or epilepsy are generally not contraindications to bright light therapy.

Side effects — Properly administered bright light therapy is generally well tolerated, and few patients discontinue treatment because of adverse effects [17-19,21,29,80]. Reported side effects, which are typically mild and reversible, include [13,19,80,89,93]:

- Agitation
- Anxiety
- Eye strain, photophobia, or visual disturbance
- Fatigue
- Headache
- Insomnia (if therapy is administered too late or too early in the day)
- Irritability
- Nausea

The most frequent problems appear to be eye strain and headache.

Before commencing bright light therapy, clinicians should assess patients for each of the symptoms that may emerge as side effects. In many cases, the symptoms are present at baseline and resolve after light treatment [29,89].

Side effects of bright light therapy may resolve with watchful waiting, and are likely to respond to a "dose" reduction that can be accomplished by decreasing the duration of sessions, increasing the distance from the light source, or taking periodic breaks (eg, for five minutes) during sessions.

Patients with bipolar major depression with seasonal features should be warned that bright light therapy may possibly induce hypomania or mania. (See 'Bipolar disorder with seasonal

pattern' below.)

Dawn simulation — Dawn simulation is a form of light therapy that is administered during the final hours of sleep, but uses less intense white light than bright light therapy. Exposure begins in the early morning before patients awaken, using a device that emits a low level of light that gradually increases to room light level (approximately 250 lux) over a period of 30 to 90 minutes. Termination of exposure is timed to coincide with the patient's habitual wakeup time.

Some patients prefer dawn simulation over bright light therapy, which requires making time to sit in front of the bright light. In addition, dawn simulation and bright light therapy are not mutually exclusive and we often use them concomitantly; together they can provide a light environment in the winter that more closely resembles a summer morning.

SUMMER DEPRESSION

Summer depression is characterized by recurrent episodes of unipolar major depression that begin in the spring to summer, and if left untreated, generally remit during the following fall or winter. (See 'Seasonal pattern' above.)

Summer depression is managed with standard treatments that are used for the general population of patients with unipolar major depression. (See "Unipolar major depression in adults: Choosing initial treatment" and "Unipolar depression in adults: Choosing treatment for resistant depression".)

In addition, clinical experience suggests that patients with summer depression may perhaps benefit from two adjunctive interventions:

- Limit exposure to natural daylight (eg, no more than 13 hours per day)
- Stay cool with air conditioning, especially at night

BIPOLAR DISORDER WITH SEASONAL PATTERN

Bipolar mood episodes with seasonal pattern are treated in the same manner as nonseasonal episodes. (See "Bipolar major depression in adults: Choosing treatment" and "Bipolar mania and hypomania in adults: Choosing pharmacotherapy" and "Bipolar disorder in adults: Choosing maintenance treatment".)

For patients with bipolar major depression with seasonal pattern who do not respond to standard treatments, it is reasonable to attempt a trial of adjunctive bright light therapy. A

regimen of standard antimanic pharmacotherapy, such as lithium, valproate, second-generation antipsychotics, or carbamazepine, should be established (eg, for one month) prior to using light therapy [80,86].

In addition, patients should be warned that bright light therapy may possibly induce hypomania or mania. However, this appears to be rare [19,89]. If there are concerns about switching from depression to hypomania or mania (eg, there is a prior history of switching when treated with antidepressant drugs), bright light therapy can be started at a low dose and titrated up gradually. As an example, on day 1 clinicians can prescribe five minutes of bright light and then increase exposure by five-minute increments each day until 30 minutes/day is reached on day 6. Clinicians should also monitor patients for emerging hypomanic/manic symptoms. For example, outpatients can be seen weekly for the first two weeks, with the subsequent frequency determined by response and side effects. If morning bright light treatment is associated with new onset insomnia, the bright light treatment is stopped until the insomnia resolves and is then restarted at a lower intensity or shorter duration.

Following response to acute treatment with adjunctive light therapy in conjunction with pharmacotherapy, light therapy is continued for at least two weeks beyond the usual spontaneous offset of winter depression; premature discontinuation of light therapy can precipitate relapse. Pharmacotherapy is continued indefinitely. (See 'Light therapy' above and "Bipolar disorder in adults: Choosing maintenance treatment", section on 'Maintenance of medications'.)

The administration, safety, and side effects of bright light therapy are discussed elsewhere in this topic. (See 'Bright light therapy' above.)

Low quality evidence supporting the use of add-on light therapy for bipolar major depression with seasonal pattern includes the following [20]:

- A six-week trial enrolled patients with bipolar I or II major depression who had not responded to pharmacotherapy, and randomly assigned them to adjunctive bright light therapy (7000 lux) or placebo (dim red light, 50 lux). Patients were not selected on the basis of a diagnosis of major depression with seasonal features and were enrolled throughout all four seasons. Nevertheless, seasonality traits were present in more than 80 percent of patients, and nearly 75 percent were enrolled during the fall and winter. Add-on study treatments were administered at midday (between 12:00 PM and 2:30 PM) and the target dose was 60 minutes per day by week 4 [94]. Among patients who completed at least one study visit between weeks 4 and 6 (n = 40), remission was greater with bright light therapy than dim red light (68 versus 22 percent). In addition, functioning improved

more with bright light therapy. None of the study patients switched polarity. However, the study results may have been biased, because the analyses included only the patients who completed at least one study visit between weeks four and six (n = 40), rather than all of the patients who were initially randomized (n = 46).

The choice of midday bright light may have been important. In prior, small prospective observational studies, bright light in the morning was associated with mood instability and worsening, whereas midday light appeared to be beneficial [95,96].

- A two-week trial enrolled patients with bipolar major depression who had not responded to pharmacotherapy and randomly assigned them to adjunctive bright light therapy (5000 lux) or placebo (dim red light, <100 lux) [97]. Patients with seasonal affective disorder were not specifically included, and seasonality traits were not assessed; both inpatients and outpatients were included. Add-on study treatments were administered in the morning for 60 minutes. Among the patients who completed the study (n = 63), response (reduction of baseline symptoms ≥50 percent) occurred in more patients who received bright light therapy than placebo (79 versus 43 percent). One patient in each group became more irritable, but otherwise no manic symptoms emerged, and the treatment was well tolerated. However, the study results may have been biased because the analyses included only the patients who completed the study (n = 63), rather than all of the patients who were initially randomized (n = 74).

- A two-week study enrolled patients with bipolar major depression (n = 32) who had not responded to medications and assigned them to adjunctive bright light therapy (10,000 lux) or a dim light (<500 lux) control condition [98]. The study states that patients were randomized according to the order in which they were admitted to the study, which may mean that patients were alternately assigned to bright light therapy and dim light, rather than randomly. In addition, only patients were blind to treatment assignment, and only 7 (22 percent) patients had a seasonal pattern. Remission occurred in more patients who received bright light therapy than dim light (7/16 versus 2/16 [44 versus 13 percent]). Among the 16 patients assigned to bright light therapy, four had a seasonal pattern, and remission with bright light therapy was more likely to occur in patients who had a seasonal pattern than those who did not (4/4 versus 3/12 [100 versus 25 percent]).

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Depressive disorders".)

INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, “The Basics” and “Beyond the Basics.” The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on “patient info” and the keyword(s) of interest.)

- Basics topics (see "Patient education: Seasonal affective disorder (The Basics)")

Additional information for patients about seasonal affective disorder is provided by the Society for Light Therapy and Biological Rhythms and Center for Environmental Therapeutics.

SUMMARY AND RECOMMENDATIONS

- Seasonal affective disorder (SAD) is defined as recurrent episodes of major depression, mania, or hypomania with seasonal onset and remission. It is not considered a separate mood disorder; rather, SAD is a subtype of unipolar major depressive disorder, bipolar I disorder, and bipolar II disorder. The treatment of SAD depends upon the specific mood disorder that is present and the severity of illness. This topic focuses primarily upon recurrent unipolar major depression with winter seasonal pattern (winter depression). (See 'Definitions' above and 'General principles' above.)

- The primary treatments for SAD include antidepressants, light therapy, and psychotherapy. Adjunctive interventions include sleep hygiene (table 6), daily walks outside, aerobic exercise, enhanced indoor lighting, and awakening from sleep with light. (See 'Approach to acute treatment' above.)

- For patients with winter depression, we suggest an antidepressant drug plus artificial light (bright light therapy, dawn simulation, or both) as first line treatment, rather than other

treatment regimens (**Grade 2C**). However, antidepressants alone are a reasonable alternative. The initial drug of choice is typically a selective serotonin reuptake inhibitor. For patients with mild to moderate winter depression, light therapy alone is also a reasonable alternative as first line therapy. However, light therapy alone is generally regarded as inadequate for severe episodes of winter depression. (See 'First line' above and 'Severity of winter depression' above.)

- For patients who do not respond satisfactorily to first line treatment with an antidepressant drug plus light therapy, we suggest switching antidepressants and continuing light therapy as second line treatment, rather than other treatment regimens (**Grade 2C**). (See 'Second line' above.)

- For patients with winter depression who partially respond to first line treatment with antidepressants alone, we continue the drug and add artificial light (bright light therapy, dawn simulation, or both) as second line treatment. For patients who respond minimally or not all to first line treatment with antidepressants alone, we switch the drug and add light therapy. (See 'Second line' above.)

- For patients with winter depression who do not respond to first line treatment with light therapy alone, we continue light therapy and add an antidepressant drug as second line treatment. (See 'Second line' above.)

- Winter depression that does not respond to first and second line therapies is generally managed by adding psychotherapy as third line treatment. We typically use cognitive-behavioral therapy; however, other psychotherapies (eg, interpersonal psychotherapy) are reasonable alternatives. (See 'Third line' above.)

- Patients with severe winter depression who do not respond to first, second, and third line therapies may be candidates for electroconvulsive therapy. (See 'Other options' above.)

- Winter depression is by definition a recurrent illness, and maintenance treatment is typically indicated to prevent recurrences, especially among patients who suffer suicidal ideation and behavior, or impairment that threatens occupational or interpersonal functioning. The same treatment that was successfully used acutely is typically selected for maintenance treatment. (See 'Maintenance treatment' above and "Unipolar depression in adults: Continuation and maintenance treatment", section on 'Indications'.)

ACKNOWLEDGMENT

The UpToDate editorial staff acknowledges Sy Atezaz Saeed, MD and Timothy J Bruce, PhD who contributed to an earlier version of this topic review.

Topic 101250 Version 18.0