

These drugs may be helpful in reducing opioid-induced sedation if other methods (such as reducing dose and increasing dose frequency) fail.

However, they are generally only in use in cancer patients and those with HIV/AIDS.

Bruera et al ([\[i\]](#)) used 10mg of methylphenidate (Ritalin) in the morning and 5 mg at midday and found that this significantly reduced sedation as well as potentiating the analgesia obtained from the usual narcotic dose.

Bruera also looked at neuropsychological tests, which improved in patients who were being treated with continuous opioid infusion and methylphenidate ([\[ii\]](#)).

More recently, Bruera published two articles in 1998 in which psychostimulants were cited as having "a defined role in the management of opioid-induced sedation" ([\[iii\]](#)) and as useful in reducing the symptoms of asthenia in terminally ill cancer patients. (

[\[iv\]](#)

)

Methylphenidate (Ritalin): this drug is commonly used to treat children with Attention Deficit Disorder but it can also significantly improve the quality of life for some patients with cancer if it is added to their opiate regime.

It is usually given 5-10mg at 0800 and 5mg at 1200.

There is usually therapeutic response within 24-48 hours: increased alertness, decreased fatigue and improved pain relief. In 1992, Bruera reported ([\[v\]](#)) on use of methylphenidate in patients with incident cancer pain and found that it allowed an increase of the opiate dose and thus facilitated improved analgesia.

It was also found, in a separate study ([\[vi\]](#)), that methylphenidate is capable of improving cognitive function in patients receiving high doses of opiates subcutaneously.

Wilwerding et al ([\[vii\]](#)) found that the drug could "mildly decrease narcotic-induced drowsiness and could increase night-time sleep.

These data, in conjunction with other published data, suggest that methylphenidate can counteract narcotic-induced daytime sedation to a limited degree."

Dextroamphetamine has also been found to have analgesic effects if used in conjunction with morphine for postoperative pain ([\[viii\]](#))

Psychostimulants used in low doses are useful for improving appetite, and reducing weakness and fatigue in AIDS patients (clxxv).

Pemoline is unrelated to amphetamine but may be of use as an antidepressant and adjuvant analgesic in treating cancer patients. ([\[ix\]](#))

It is administered as a chewable tablet that is absorbed through the buccal mucosa. Weinshenker et al ([\[x\]](#)) studied the use of pemoline to combat fatigue in multiple sclerosis.

They found that "One-fourth of patients did not tolerate the drug well, and 7% had to discontinue pemoline during the study due to side effects.

The most common side effects were anorexia, irritability, and insomnia. Pemoline may be an effective short-term treatment for fatigue associated with MS, but its adverse effects are not well tolerated by many patients."

[i] Bruera E, Chadwick S, Brenneis C, Hanson J, MacDonald RN *Cancer Treat Rep* 1987;71:67-70 Methylphenidate associated with narcotics for the treatment of cancer pain.

[ii] Bruera E, Cancer pain: chronic studies of adjuvants to opiate analgesics . In : Max M, Portenoy R, Laska E, eds. *Advances in Pain Research and Therapy* Vol.18, New York, Raven Press, 1991,pp.267-281.

[iii] Bruera E, Neumann CM

Psychooncology

[iv] Bruera E, Neumann CM *CMAJ* 1998 Jun 30;158(13):1717-26 Management of specific symptom complexes in patients receiving palliative care.

[v] Bruera E, Fainsinger R, MacEachern T, Hanson J

Pain

[vi] Bruera E, Miller MJ, Macmillan K, Kuehn N *Pain* 1992 Feb;48(2):163-6 Neuropsychological effects of methylphenidate in patients receiving a continuous infusion of narcotics for cancer pain.

[vii] Wilwerding MB, Loprinzi CL, Mailliard JA, O'Fallon JR, Miser AW, van Haelst C, Barton DL, Foley JF, Athmann LM *Support Care Cancer* 1995 Mar;3(2):135-8

A randomized, crossover evaluation of methylphenidate in cancer patients receiving strong narcotics.

[viii] Forrest WH et al *N Engl J Med* 1977;296:712-715 Dextroamphetamine with morphine for the treatment of post-operative pain.

[ix] Breitbart W, Mermelstein H, *Psychosomatics* 1992;33:352-356 Pemoline : an alternative psychostimulant in the management of depressive disorders in cancer patients.

[\[x\]](#) Weinshenker BG, Penman M, Bass B, Ebers GC, Rice GP

Neurology