# PALLIATIVE CARE CASE OF THE MONTH

## "The Use of Psychostimulants in Patients with Serious Illness"

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**Case:** Mr. D is a 65-year-old man with a history of diabetes, GERD, hypertension, and stage 4 pancreatic cancer, who was admitted with abdominal pain, jaundice, and fatigue. During his admission he had a CT scan that showed an increase in the size of his pancreatic head tumor causing biliary obstruction. He underwent endoscopic retrograde cholangiopancreatography (ERCP) with placement of a metal stent, with resultant improvement in his jaundice. His hospital course was complicated by Clostridium difficile colitis secondary to post-procedural antibiotics, severe epigastric abdominal pain, and overall failure to thrive. Palliative care was consulted to address pain and other symptoms, as well as goals of care. The patient and his family made it clear that his goal was for life-prolonging therapy, including further chemotherapy. However, there was significant concern among the treatment team regarding his deteriorating functional status, raising the question of whether he would be an appropriate candidate for further cancer-directed therapies.

The patient reported significant fatigue, anorexia, and low mood, particularly after the addition of opioid therapy for his abdominal pain. While his pain was better controlled, he did not have an appetite and complained of debilitating fatigue that made it difficult for him to get out of bed and work with physical therapy. He asked, "Isn't there anything you can do to help me to feel better?"

**Discussion:** Patients with serious illness experience a myriad of symptoms that impair overall quality of life. These symptoms can include depression or debilitating fatigue, which is caused by advanced illness and/or the therapies that the patient is receiving, including opioid therapy.

In an effort to counteract such symptoms, a psychostimulant can be trialed. For patients who respond to psychostimulants with elevated mood and/or increased energy, they may also experience increased cognition and opioid effectiveness with less opioid-related sedation. In general, psychostimulants are well tolerated and effective, with no lag time to effect (less than 24 hours). While these medications can be associated with anorexia in general, in patients with advanced illness they can paradoxically improve appetite as well. For patients with depressed mood nearing the end of life, a psychostimulant may be trialed in conjunction with an antidepressant to provide some potential early benefit during the antidepressant lag time.

There are a variety of psychostimulants, with dextroamphetamine, methylphenidate, and modafinil being the most commonly used. These are believed to function by increasing dopamine via increased dopamine release and/or decreased dopamine reuptake. Of these agents, methylphenidate is the most widely used in palliative care, has the most data supporting its use, and is the most accessible for outpatient use due to its relative affordability.

The chart below highlights important aspects of methylphenidate and modafinil.

| Drug | Onset of Action | Starting Dose | Usual Daily Dose | Maximal Daily Dose | Schedule | Cost |
|---|---|---|---|---|---|---|
| Methylphenidate (Ritalin®) | Less than 24hrs | 2.5mg | 5mg -10mg | 60mg - 90mg | 8am and noon | $53-97 per month* |
| Modafinil (Provigil®) | Less than 24hrs | 50mg - 100mg | 100mg-200mg | 400mg | Daily | $567-670 per month* |

*Prices per GoodRx.com, accessed Nov 30, 2020

There are several limitations to the use of psychostimulants. For example, methylphenidate and most other psychostimulants can only be given by mouth, are associated with tolerance over time, and withdrawal depression is likely to develop with abrupt discontinuation. These medications can have undesirable side effects, reported in up to 30% of patients, such as insomnia, agitation, anorexia, psychosis, movement disorders, headache, tachyarrthymias, and hypertension. More serious reactions such as angina and cerebral arteritis (with methylphenidate) occur rarely. Psychostimulants can potentiate or reduce the effectiveness of other medications via the P450 system and other pathways, therefore drug-drug interactions should be evaluated prior to starting any psychostimulant and this class of medication should never be used with MAO-inhibitors or antipsychotics. As a general approach, these medications should be used with caution in patients with cardiovascular disease, psychiatric illness, epilepsy, hyperthyroidism, and closed-angle glaucoma.

**Return to Case:** Given Mr. D's, symptoms, a psychostimulant (methylphenidate) was recommended, and he was started on 2.5 mg twice daily at 8 am and noon. While he was known to have diabetes, hypertension, and mild coronary disease, he had no history of atrial fibrillation or myocardial infarction. It was therefore considered reasonably safe to start this medication. The following day, Mr. D was noted by his family and nursing to be eating more and to be more interactive with physical therapy. He was starting to feel more energetic and had a better appetite. He had no side effects such as insomnia, anxiety, or tremor.

**Conclusion:** For patients with serious illness who have advanced disease and are experiencing significant symptoms such as fatigue, depressed mood and/or anorexia, psychostimulants can be trialed, while being mindful of potential drug-drug interactions and other comorbidities.

**Modified from Palliative Care Fast Facts #61 and #259 www.mypcnow.org**

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