Valvular Heart Disease in Pergolide-Treated Parkinson’s Disease

James Scozzafava, Jennifer Takahashi, Wendy Johnston, Lakshmi Puttagunta, W.R. Wayne Martin

ABSTRACT: **Background:** A 61-year-old woman with Parkinson’s disease, receiving pergolide 1.75 mg four times daily, was admitted with progressive dyspnea. **Methods:** Investigations revealed mitral and aortic regurgitation. She underwent surgical mitral replacement and aortic repair, but had a post-operative course characterized by repeated bouts of congestive heart failure. **Results:** Severe tricuspid valve (TV) regurgitation developed within one month after the TV was reported on echocardiography to be relatively normal. Subsequent discontinuation of pergolide was associated with symptomatic improvement. **Conclusions:** This case illustrates the severity and rapidity with which cardiac valvular abnormalities can develop in patients receiving pergolide.

RÉSUMÉ: **Valvulopathie cardiaque chez une parkinsonienne sous pergolide. Contexte:** Une femme âgée de 61 ans, traitée avec du pergolide 1,75 mg quatre fois par jour pour une maladie de Parkinson, a été hospitalisée pour dyspnée progressive. **Méthodes:** L’évaluation de la patiente a mis en évidence une régurgitation mitrale et aortique. Elle a subi un remplacement mitral et une réfection aortique. Au cours des suites opératoires, elle a présenté des épisodes d’insuffisance cardiaque à répétition. **Résultats:** Bien que le rapport d’échographie ait fait état d’une tricuspide relativement normale un mois auparavant, on a constaté subséquemment une régurgitation tricuspide sévère. Les symptômes ont régressé à l’arrêt du pergolide. **Conclusions:** Cette observation illustre la sévérité et la rapidité d’installation de la valvulopathie cardiaque chez les patients sous pergolide.


Pergolide is an ergot-derived dopamine agonist used in the treatment of Parkinson’s disease (PD). Like other ergot derivatives, pergolide can be associated with fibrotic complications, including cardiac valvulopathy. Recent reports have indicated that these valvular changes may occur more commonly than initially recognized. The present case demonstrates how rapidly these changes can evolve in the setting of pergolide treatment.

CASE REPORT

A 61-year-old woman was admitted with a one year history of progressive dyspnea. There was no previous history of heart disease or other significant medical problems, except for PD diagnosed about seven years previously. At that time she was started on levodopa/carbidopa, which produced good symptom control for about three years, until end-of-dose deterioration developed. Pergolide was added and proved successful in regaining control of her Parkinson’s symptoms. Parkinson’s disease medications at the time of hospital admission consisted of controlled release levodopa/carbidopa 200/50, 1.5 tablets four times daily, and pergolide 1.75mg four times daily.

Examination revealed a thin, anxious woman with signs of congestive heart failure, including a Grade III/VI pansystolic murmur involving the entire precordium, and evidence of pulmonary and peripheral edema. There was mild symmetrical cogwheel rigidity in upper limbs, slight resting tremor of both hands, and bradykinesia for repetitive finger movements. In general, PD signs seemed well controlled.

Cardiac investigations included transesophageal echocardiogram (TEE), which confirmed the presence of severe mitral valve (MV) regurgitation and moderate aortic valve (AV) insufficiency. The pulmonary and tricuspid valves (TV) were relatively normal, although mild TV regurgitation was noted. Surgical AV repair and MV replacement were undertaken, with the MV replaced by a mosaic bioprosthetic tissue valve. Intra-operatively, significant thickening of all
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The patient improved post-operatively and was discharged the following week, continuing on the same PD medications. She was re-admitted shortly afterward with acute sepsis, acute renal failure (ARF), complicated by urosepsis, acute respiratory distress, and delirium. At that time, TEE revealed in addition to severe TV regurgitation, mild-moderate MV regurgitation and moderate AV regurgitation. The actual tricuspid valve architecture and position of annulus were normal. There was no evidence of infective endocarditis or other possible precipitants to account for this patient's recurrent valvular and congestive heart disease.

At this time, the Neurology Service was consulted regarding the delirium and the possibility that pergolide may be contributing to her worsening cardiac and neurological condition. Pergolide was gradually withdrawn over several weeks and the CHF symptoms improved. She was discharged home several weeks later and remained out of hospital without any subsequent episodes of CHF or evidence of worsening cardiac function. A repeat echocardiogram several months after the withdrawal of pergolide showed improvement in function of all valves, particularly the aortic and tricuspid valves. Furthermore, pulmonary artery pressure had improved to 30 mmHg and left ventricular ejection fraction was greater than 75% without any wall motion abnormalities. Some mild to moderate regurgitation of the previously diseased valves remained.

**DISCUSSION**

This patient developed severe cardiac valvular disease, in the absence of any significant preceding heart disease, while receiving a high dose of pergolide. Valvular dysfunction progressed rapidly, initially involving the MV and AV. The TV, first described as relatively normal on echocardiogram, became severely and progressively impaired within four weeks. The presentation, including the histological changes in MV and AV leaflets, was most consistent with carcinoid-like valve disease associated with pergolide treatment. Although left with a permanent deficit in cardiac function, the patient’s symptomatic improvement in cardiac status during decreasing doses of pergolide supports the clinical impression that high doses of pergolide may have been the major cause of her progressive valvular heart disease.

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al\textsuperscript{10} suggested an even higher prevalence, with 89% of pergolide-treated patients having some degree of valvular insufficiency. This group reported a 2- to 3-fold increased risk of abnormal valves in pergolide-treated patients, and an estimated 14-fold increased risk of tricuspid regurgitation. The mechanism whereby pergolide may induce valvular lesions is unknown, but it is noteworthy that agonist properties at 5-HT receptors have been reported,\textsuperscript{11} suggesting a similarity to other ergot derivatives such as fenfluramine.

Our observations support the postulated relationship between pergolide and cardiac valvular disease. They illustrate not only the potential severity of this complication, but also the rapidity with which the valvular changes can develop in patients receiving pergolide. These findings urge the cautious use of this medication and encourage further study into the association between ergot derivatives and valvular heart disease.

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**References**