Regional Anesthesia in Parkinson’s disease: a Case Report

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Abstract: Parkinson's disease is a common movement disorder typically affecting individuals aged 50-70 years. It is a neurodegenerative disorder of the central nervous system and characterized by bradykinesia, rigidity, postural instability and resting tremor. Other frequently seen symptoms are masked face, dysphagia, hypophonia, and gait disturbances. Parkinson's disease is a neurological disease and therefore, in general, spinal anesthesia is avoided. However, spinal anesthesia has some advantages such as clinical evaluation of the intraoperative neurological signs, suppression of surgical stress, postoperative pain management, and early mobilization. Medicine administered for general anesthesia may interact with the medication for Parkinson's disease. Preoperative cessation of anti-Parkinsonian drugs causes increased severity, morbidity and mortality. We have aimed to present our 79-year-old patient, who has been under treatment for Parkinson's for 2 years and to whom spinal anesthesia was administered during cystoscopy and bladder neck substance injection operation, and to overview the literature.

Keywords: Parkinson's disease, Spinal anesthesia, elderly.

INTRODUCTION
Parkinson's disease (PD) is a disease appearing as a result of progressive and degenerative disorder of the central nervous system, especially the extra pyramidal system [1]. PD is caused by a progressive dopamine loss in the nigrostriatum. The severity of dopamine loss is concordant with the severity of bradykinesia. Gama-aminobutyric acid (GABA) activity is increased simultaneously with dopamine loss and leads to inhibition in the thalamus and the brainstem nuclei [2]. Treatment is symptomatic and includes levodopa, anti-cholinergics, dopamine agonists, amantadine, and type b monoamino-oxidase inhibitors [3]. The drug interactions between anesthetics and anti-Parkinsonian drugs and the severity of the case are important for anesthesiologists. We have aimed to share the experience of spinal anesthesia in this case.

CASE PRESENTATION
Informed consent was obtained from the female patient aged 79 years with the complaints of hematuria and enuresis, for whom elective surgery had been planned. She has Parkinson's and cardiac disease in her history. She underwent cystectomy 30 years ago, was diagnosed with Parkinson's 2 years ago and has been receiving madopar (Levodopa+benserazide) 125mg/tablet (3x1), keprra (Levetirasetan) 500mg (1x1), etkinia (rasagiline) 1mg (1x1), and dement (donepezin hydrochloride) 5mg (1x1). She also takes digoxin-sandos 0.25mg (3x1) for her cardiac disease. The American Anesthesiology Association physical classification score was ASA III and spinal anesthesia was planned. It was observed that the patient had no coagulation disorders or biochemical anomalies according to the blood tests performed one day before the surgery. The patient was evaluated by a cardiologist. She was taken to the operation with a medium risk. The patient was accepted into the operation room, monitored and venous access was established. 500Ml 0.9% NaCl was administered as infusion. 2.5ml 5% heavy bupivacaine was administered at the level of L4-L5 using a 25G needle while the patient was in the seated position. The patient was placed on the operating table and 2lt/min O2 was administered. Sensory block was detected at the level of T10 with the needle test performed 5 minutes later. Blood pressure, heart rate and O2 saturation levels were stable during the intraoperative period. The patient was transferred to her room without any problems after a 20-minute observation in the postoperative recovery room.

DISCUSSION
Parkinson's disease (PD) is a progressive disorder causing drainage of dopamine deposits due to degeneration of dopaminergic cells in the substantia nigra and the nigrostriatal pathway [4]. Gama-aminobutyric acid (GABA) activity is increased simultaneously with dopamine loss and leads to inhibition in the thalamus and the brainstem nuclei [2]. Thalamic inhibition suppresses the cortical motor system and causes akinesia, rigidity and tremor. It presents with micrographia, tremor of the hand, decreased releasing of the arm and foot swamping on...
one side in the beginning. Two-sided bradykinesia, resting tremor and postural instability and muscular rigidity, monotonous speech and difficulty speaking are observed in advanced stages [5].

PD requires continuous treatment after the diagnosis [6]. Treatment is symptomatic and includes levodopa, anti-cholinergics, dopamine agonists, amantadine, and type b monoamino-oxidase inhibitors [3].

L-Dopa treatment must be continued even on the morning of the operation [7], since the half-life of L-Dopa is very short (1-3hours) and sudden withdrawal may worsen the muscular rigidity and interfere with ventilation by complicating spontaneous respiration [2]. Pharmacological treatment should be administered until the morning of the operation. In our case, madopar treatment was continued with no cessation as the regular treatment regimen of the patient.

Among the symptoms of Parkinson’s disease, postural instability is the most debilitating and the least responsive to treatment symptom; the patient may become bed-ridden in advanced stages [8]. Immobilization increases the risk of venous thromboembolism. Orthostatic hypotension, impaired thermoregulation, increased sweating and sphincter dysfunctions, gastrointestinal motility dysfunction, difficulty swallowing and as a result, increased risk of aspiration could be observed due to autonomic dysfunction [6, 9].

We performed spinal anesthesia on our patient considering the aspiration risk, de-ventilation difficulty and considering the importance of early mobilization. The coughing test was possible for control of the incontinence response to bladder neck substance injection and provided comfort for the surgeon.

CONCLUSION
We think that spinal anesthesia could be performed safely in patients with Parkinson's disease if preoperative evaluation is performed carefully and anti-Parkinsonian medication is continued without cessation.

REFERENCES