



CODEN [USA]: IAJPBB

ISSN : 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187

<https://doi.org/10.5281/zenodo.5533362>

Available online at: <http://www.iajps.com>

Research Article

ASSOCIATION OF SUPINE HYPERTENSION IN PATIENTS WITH PARKINSON'S DISEASE

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Article Received: July 2021

Accepted: August 2021

Published: September 2021

Abstract

***Introduction:** Patients with primary chronic autonomic failure also often have supine hypertension.*

***Objectives:** The main objective of the study is to evaluate the association of supine hypertension in patients with Parkinson's disease.*

***Material and methods:** This analytical study was conducted in Punjab Health department during June 2019 to December 2019. Blood pressure was measured noninvasively by using either a tonometric device placed on the radial pulse and calibrated against the brachial blood pressure measured by an automated cuff (Colin) or a photoplethysmographic device placed around a finger.*

***Results:** The data was collected from 32 patients. Males were in majority 24 (75.0%) and most of them were above 60 years of age and females were 8 (25.0 %). The average age of patients was 62.5 years. The mean duration of the PD disease was 3.4 years. Nine (28.1%) had known hypertensive whereas 7 (21.9%) were taking ARBs. **Conclusion:** Supine hypertension is significantly associated with Parkinson's disease, especially when the duration of disease is already long. Long term outcome and role of supine hypertension towards drug therapy response also needs to be elucidated.*

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Please cite this article in press Sara Akram Choudhry et al, Association Of Supine Hypertension In Patients With Parkinson's Disease, Indo Am. J. P. Sci, 2021; 08(9).

INTRODUCTION:

Patients with primary chronic autonomic failure also often have supine hypertension. Because of widespread use of the salt-retaining steroid fludrocortisone to treat OH and literature documenting increases in blood pressure secondary to mineralocorticoid administration, supine hypertension in primary chronic autonomic failure might be a side effect of treating the OH and not part of the disease; however, supine hypertension has been reported in a substantial proportion of untreated patients. [1] Analogously, levodopa is a mainstay in the treatment of PD, and based on literature that levodopa produces OH, OH in PD might be a side effect of treating the movement disorder and not part of the disease; however, OH occurs in at least some patients with PD who are off or have never been treated with levodopa. [2]

Parkinson's disease is not very common but affected patients have progressive decline in their quality of life and became dependant for activities of daily living. The status of supine hypertension and its association with clinical features of hypertension are still to be elucidated in detail. The prevalence of this neurodegenerative disorder is rising rapidly in older ages affecting more than 1.7% of the population over the age of 65 years. [3] It is estimated that by 2030 the current incidence of PD will double as the population's age globally. The causes of PD are mostly not well-known, which hampers the proper therapeutic programs and preventive measures to combat neurodegeneration. PD is a multifactorial brain disorder. The inherited forms of PD account for only 10–15% of all cases, and the majority of PD cases are likely due to different combinations of environmental exposures and genetic susceptibility. [4] Possible environmental exposures including alcohol intake, coffee, vitamin E intake and use of nonsteroidal anti-inflammatory drugs could reduce the PD risk; although, pesticide exposure and milk intake could increase its risk. Nevertheless, at present, the environmental risk factors for developing PD are still not fully known. 5 Hypertensive abnormalities can occur due to autonomic dysfunction, even before the

onset of the classic motor symptoms of PD. In addition to orthostatic and postprandial hypotension, PD patients also experience nocturnal and supine hypertension, which suggests that BP regulation is impaired to great extent in these patients. [6]

Objectives:

The main objective of the study is to evaluate the association of supine hypertension in patients with Parkinson's disease.

MATERIAL AND METHODS:

This analytical study was conducted in Punjab Health department during June 2019 to December 2019. Blood pressure was measured noninvasively by using either a tonometric device placed on the radial pulse and calibrated against the brachial blood pressure measured by an automated cuff (Colin) or a photoplethysmographic device placed around a finger. There were 32 patients whose medical information was complete and they were selected in the study. The ethical clearance was taken from the hospital ethics committee and consent and permission of the head of the department was taken to use the medical record of patients for this research. The study parameters included the baseline information of patients in terms of age and gender, moreover clinical information was based on the duration of disease, presentation and management of patients.

Statistical analysis:

The data was collected and analysed using SPSS version 20.

RESULTS:

The data was collected from 32 patients. Males were in majority 24 (75.0%) and most of them were above 60 years of age and females were 8 (25.0 %). The average age of patients was 62.5 years. The mean duration of the PD disease was 3.4 years. Nine (28.1%) had known hypertensive whereas 7 (21.9%) were taking ARBs. Moreover, none of the patients had taken ACE inhibitors. There were 5 (15.6%) patients on beta blocker therapy in this study.

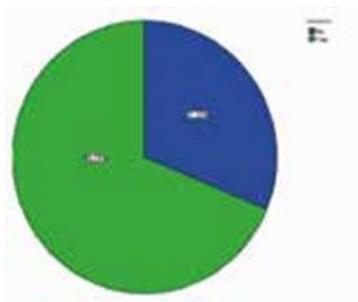


Figure I: Supine Hypertension in the study

	Supine hypertension (n=24)	No supine hypertension (n=10)	p-value
Gender			
Male	15 (68.2%)	9 (90.0%)	
Female	9 (31.8%)	1 (10.0%)	0.18
Age (years)			
40-50	4 (18.2%)	3 (30.0%)	0.40
51-60	5 (22.7%)	2 (20.0%)	
61-70	8 (36.4%)	1 (10.0%)	
71 or above	5 (22.7%)	4 (40.0%)	
Age (Mean \pm SD)	62.3 \pm 11.1	63.0 \pm 15.3	0.89
Known hypertension	6 (27.3%)	3 (30.0%)	0.87
ARBs	4 (18.2%)	3 (30.0%)	0.45
Duration of PD (Mean \pm SD)	3.8 \pm 2.1	2.4 \pm 2.1	0.09

Table 01: Association of baseline and clinical features with supine hypertension

DISCUSSION:

Many others have also found presence of supine hypertension in PD. A review study by Espay, A *et al* disclosed that autonomic dysfunction is present in most of PD patients, this dysfunction is related to hemodynamic abnormalities. [7] Another study by Kaufmann H and Goldstein DS also proved that supine hypertension is related with autonomic dysfunction in Parkinson's disease. Another study by Berganzo K and colleagues also confirmed the relationship of supine hypertension and Parkinson's Disease. [8] This proves and validates the findings of current study. Continued with previous literature, in the present study male gender and older age than 60 years was predominantly affected by PD. [9] The study by Goldstein DS had also found male preponderance. Another study by Ejaz and colleagues also witnessed male majority and elder ages in PD. PD is an old age

neurodegenerative disorder which has been proven many times, moreover, male affliction has also been witnessed. [10]

CONCLUSION:

Supine hypertension is significantly associated with Parkinson's disease, especially when the duration of disease is already long. Long term outcome and role of supine hypertension towards drug therapy response also needs to be elucidated.

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