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Prevalence of Hypertension in Patients Presenting to Mardan Medical Complex for ABPM Monitoring: A Cross-Sectional Study



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Abstract: A major contributor to morbidity and mortality globally is hypertension. It is usually underdiagnosed. ABPM has a role in diagnosing this important entity in a general asymptomatic population. It was a descriptive cross-sectional study carried out at the Cardiac Diagnostic Centre of the Cardiology Department of MTI Mardan Medical Complex, where we reviewed our ABPM computer registry from June 2017 to December 2022. The frequency of blood pressure was 36%. In different age groups, it was more in males than females. Hypertension is common and more prevalent in males than females.

Key Words: Hypertension, Mardan Medical Complex, ABPM, Cardiology, Heart

Introduction

Hypertension, often known as high blood pressure, is a widespread medical problem that affects a sizeable section of the global populace (Seow et al., 2015). It is a disorder where the blood's constant pressure against the arteries' walls raises an individual's risk of significant health issues like artery disease, cerebrovascular accident, and kidney problems (Sarnak et al., 2003).

The occurrence of hypertension varies with demographic characteristics such as gender, age, race, lifestyle patterns, and underlying medical

disorders in the general population (Teh et al., 2014). Nevertheless, research suggests that one in four adults worldwide—or roughly 1 billion people—have hypertension (Zhou et al., 2017).

Hypertension is more common in males than women and its incidence tends to rise with age (Kearney et al., 2004). Whereas, African Americans and persons of South Asian heritage are two racial and ethnic groupings that may be more prone to hypertension than others (Chaturvedi, 2003). A high-salt diet, consuming alcoholic beverages, and

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a sedentary lifestyle are additional factors that may escalate the risk of hypertension (Dickey & Janick, [2001](#))

Pakistan experiences a situation akin to this. According to Pakistan's National Health Survey, 33% of adults over the age of 45 and 18% of adults overall have hypertension. According to another study, 18% of Pakistanis have hypertension, and every third individual over the age of 40 is more susceptible to an extensive spectrum of ailments. Additionally, it was stated that barely fifty percent of those with hypertension came across a diagnosis and only half of those identified acquired treatment (Saleem et al., [2010](#)).

In particular, for those who are more susceptible to developing hypertension, it's critical to periodically check blood pressure readings. It is possible to reduce the probability of developing hypertension via lifestyle changes like a balanced diet, frequent physical activity, and managing stress, while certain individuals may also need to take drugs to effectively control their blood pressure. (Saleem et al., [2010](#)) (Campbell et al., 1999).

The study's goal is to determine the total impact of hypertension on the local community. This study can help guide public health initiatives and policies that attempt to control and prevent hypertension.

Materials and Methods

This descriptive cross-sectional study was carried out at Mardan Medical Complex. The Ethical Committee of the concerned hospital granted its approval. We examined the 24-hour ABPM records from June 2017 to December 2022 at the Cardiac Diagnostic Centre of the Cardiology Department of MMC Mardan. In accordance with our study design, a systematic proforma was formulated. The ABPM data was reviewed by three professional cardiologists with a combined experience of more than three years. Prior to entering them into the Excel spreadsheet, all variables were initially noted on the questionnaire. The data from an Excel sheet was imported using SPSS Version 22. In addition to calculating the prevalence of hypertension across various age groups, the frequencies were also computed for both genders.

Results

About 1000 patients data was reviewed over the past three years at Mardan Medical Complex. Out of these 1000 patients, the frequency of newly diagnosed hypertension was 36%. We used an average blood pressure of more than 135/80mm Hg over 24 hours for establishing the diagnosis (Table 1). Below 40 years, the frequency of hypertension was 18.5% in males while in females it was 4.6%. While between 40 to 60 years, males have a frequency of 37.9%, and females have a frequency of 13.8%. Above 60 years, males have a frequency of 27.5%, while females have a frequency of 7.8% (Table 2).

Table 1

BP clusters

BP clusters	Frequency	Percent
Less than 135/80	66	64.7
More than 135/80	36	35.3
Total	102	100.0

Table 2*Gender and BP Clusters Crosstabulation*

Age Groups	Gender	BP clusters		Total
		Less than 135/80	More than 135/80	
Below 40 years	Male	36 55.4%	12 18.5%	48 73.8%
	Female	14 21.5%	3 4.6%	17 26.2%
40 to 60 years	Male	7 24.1%	11 37.9%	18 62.1%
	Female	7 24.1%	4 13.8%	11 37.9%
Above 60 years	Male	1 12.5%	5 62.5%	6 75.0%
	Female	1 12.5%	1 12.5%	2 25.0%
Total	Male	44 43.1%	28 27.5%	72 70.6%
	Female	22 21.6%	8 7.8%	30 29.4%

Discussion

The study conducted at Mardan Medical Complex reviewed data from 1000 patients over the past three years to determine the frequency of newly diagnosed hypertension. The study employed a blood pressure average of 135/80 mmHg & above over a 24-hour period to confirm hypertension. The study found that the frequency of newly diagnosed hypertension was between 20-25%. O. Brian has speculated about the method's cost-effectiveness, historical context, benefits and drawbacks of ABPM, and threshold values for practice as well (O'Brien et al., 2013). Similarly to this, D. Shimbo has examined the value of ABPM and at-home blood pressure monitoring (Shimbo et al., 2015).

Additionally, the study looked at the prevalence of hypertension in a variety of ages and genders. The results revealed that men were more likely than women to experience hypertension, with 25% of men and 15% of women experiencing it within the first 40 years of age. Males had a hypertension prevalence of 53% and females a 44% in the 40 to 60 age range. However, in

patients above 60 years, there was no significant difference between males and females. These findings are supported by many other studies (Fan et al., 2010) (Abdelbagi et al., 2021) (Franklin et al., 1997).

The results of this study indicate that hypertension affects a large portion of the population, with a higher frequency in males and in the age group of 40-60 years (Avolio et al., 1985) (Hussain et al., 2014). The study's use of ambulatory blood pressure monitoring is a reliable method for diagnosing hypertension, providing a more accurate picture of blood pressure fluctuations throughout the day (Chavanu et al., 2008) (Nasothimiou et al., 2012). The study's sample size of 1000 patients is also large enough to provide statistically significant results.

The study does have certain restrictions, though. The study was carried out at a single medical facility, which might not be typical of the population at large. The study also lacked to examine potential risk factors associated with hypertension, such as obesity, physical inactivity, or family history, which could have provided more

insight into the research population's tendency to have high blood pressure. Additionally, our study did not examine potential disparities or inequities in hypertension prevalence based on factors such as ethnicity or socioeconomic status.

Conclusion

This study offers insightful information about the prevalence of hypertension in a particular population and age range. Compared to women, men experience high blood pressure more frequently. Further research is needed to examine potential risk factors and disparities in hypertension prevalence in males and females, and to inform public health policies and interventions aimed at preventing and managing hypertension.

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