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A Pilot Study on Medication Adherence using Morisky's Scale (Mmas-8) on Patients with Hypertension in Uttarakhand

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| KEYWORDS Hypertension, Medication Adherence, Anti-hypertensive drugs, Morisky Scale, MMAS-8. | ABSTRACT: The present study potential implicat hypertension who medication adher the Morisky med questionnaire to to of the patient p medications. Thi hypertension is a challenge of low the urgency of hypertension. | y is focusing on medication adherence ions on hypertension management. The owere undergoing treatment with anti- ence the Morisky medication adherence ication adherence scale (MMAS-8), th he participants. The results revealed a co oppulation demonstrating low adheren- s finding is particularly an alarming major contributor to various other med adherence among patients taking anti-h addressing this issue to mitigate th | e among patients with hypertension and its e study involved 50 patients diagnosed with hypertensive medications and to assess the e scale (MMAS-8) was used. By employing e study collected data through surveys via concerning trend, with a significant portion nce to their prescribed anti-hypertensive situation that should be consider because lical conditions. So, it is concluded that the hypertensive medications and emphasize on he broader health risks associated with |

Introduction:

Hypertension, commonly referred to as high blood pressure, is a pervasive and significant public health concern worldwide. It is a chronic medical condition characterized by elevated systolic and/or diastolic blood pressure levels above the recommended thresholds of 130/80 mmHg (American College of Cardiology, 2017). Hypertension is a major risk factor for cardiovascular diseases, stroke, and renal disorders, contributing substantially to morbidity and mortality rates globally (World Health Organization, 2020; Mills et al., 2021). The etiology of hypertension is multifactorial, involving genetic predisposition, lifestyle factors such as poor diet and physical inactivity, and underlying medical conditions like diabetes and chronic kidney disease (Kearney et al., 2005; Chobanian et al., 2003). Despite the availability of effective antihypertensive medications and lifestyle interventions, achieving optimal blood pressure control remains a challenge due to various factors, including inadequate patient adherence to prescribed treatment regimens (Burnier, 2019; Naderi et al., 2018).

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Medication adherence, defined as the extent to which patients follow their prescribed medication regimen, is a critical determinant of treatment success in hypertension management (Osterberg & Blaschke, 2005). Nonadherence to antihypertensive medications can lead to suboptimal blood pressure control, increased risk of cardiovascular events, and escalating healthcare costs (Brown et al., 2017; Kronish et al., 2016).

To assess medication adherence among hypertensive patients, various tools and scales have been developed. One widely used instrument is the Morisky Medication Adherence Scale (MMAS), which measures adherence through a set of structured questions that evaluate different aspects of medication-taking behavior (Morisky et al., 2008). The MMAS has been validated in diverse patient populations and has shown predictive validity in identifying individuals at risk of poor adherence and subsequent adverse outcomes (Krousel-Wood et al., 2009; Al-Qazaz et al., 2010).

Understanding the factors influencing medication adherence in hypertensive patients is crucial for developing targeted interventions to improve treatment outcomes. Previous research has identified socioeconomic factors, health literacy, side effects of medications, and patient-provider communication as key determinants of adherence behavior (Muntner et al., 2017; Khatib et al., 2014; Ji et al., 2018).

This study aims to contribute to the existing body of knowledge by assessing medication adherence among patients with hypertension using the Morisky Medication Adherence Scale (MMAS) and exploring potential factors associated with non-adherence. By identifying modifiable factors that hinder optimal adherence, healthcare providers can implement tailored strategies to enhance medication adherence and consequently improve blood pressure control and longterm health outcomes in hypertensive individuals.

Methodology:

This is an observational study which was carried out in medicine ward of a Shri Mahant Indiresh Hospital. Patient's data was collected from the IPD and OPD of medicine department through the means of patient profile form which includes detailed information about each patient such as patient history, laboratory data, treatment etc. Patients of either gender were included in the study according to the inclusion criteria (Patients above 18 years of age, Patients on the treatment of hypertension, Patients on the intake of DASH dietand their data were evaluated appropriately. Data analysis was done by using Microsoft excel and results were recorded on percentage basis, and medication adherence was assessed by using Morisky medication adherence scale(MMAS-8).

Ethical Consideration:-The protocol was submitted to Ethical committee and was approved by Institutional Ethics Committee of Shri Guru Ram Rai Institute of Medical and Health Sciences, Shri Guru Ram Rai University, Dehradun. Collection of data was started after approval from Institutional Ethics Committee

Results and Discussion:

The study population, comprising 50 patients aged 18 years and above, highlights an interesting gender distribution. Specifically out of 50 subjects, 33(66%) of the participants were male, while the remaining 17(34%) were female. This gender distribution is significant because it provides insight into the prevalence of hypertension among different genders as shown in **figure below**.

Several studies have consistently shown that males tend to be more prone to hypertension than females. One notable study conducted by Dhivya P. S et al., (2014) reported similar results, demonstrating that the incidence of hypertension is higher among males when compared to females. This study's findings align with the gender distribution observed in our study population.

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Percentage of males and females

The other findings that the prominence of pharmacological therapy as a treatment approach for hypertension within the study population. Almost about 74% patients that is 37 subjects were on undergoing medication (particularly on Calcium channel blockers or Angiotesin receptor blockers) indicates the importance of medical intervention in managing hypertension, especially for individuals with elevated blood pressure levels. The notable reduction in mean blood pressure from the initial levels measurements (170.96/111.86mmhg) to the present measurements (136.82/90.32mmhg) further highlight the effectiveness of pharmacological therapy. This reduction suggests that the treatment has successfully contributed to lowering blood pressure and potentially mitigating the associated cardiovascular risks that is similar as reported in a study of Krousel-Wood et al, 2004.

It's important to note that while pharmacological therapy is a significant approach, other nonpharmacological interventions, such as lifestyle modifications (e.g., dietary changes, exercise, stress management), could also contribute to blood pressure management. Additionally, the data emphasizes the importance of regular monitoring and consistent treatment adherence to achieve optimal results in blood pressure control.

In addition to the other findings, a concerning trend of low medication adherence among patients receiving antihypertensive treatment were also found. Large proportions (86%) of patients were under the category of low adherence to their prescribed medications, as this trend indicates that a significant majority of individuals were not consistently taking their antihypertensive medications as recommended by their healthcare providers. Only, 4% patients (2subjects out of 50) categorized under high adherence which reveals that some individuals were effectively following their medication regimen. This group's adherence likely contributes to the positive outcomes observed in the reduction of mean blood pressure levels as shown in figure and table below.

The relatively small proportion (10%) of patients with medium adherence falls in between the extremes of low and high adherence. Understanding the characteristics and factors associated with this group could provide insights into strategies that could improve overall adherence rates. The finding in the present data is also relative to the Meta-analysis study of S. H Naderi et al., 2018.

The low adherence rate may attributed to various other factors, such as forgetfulness, complex dosing regimens, medication side effects, lack of understanding about the importance of adherence, or even financial constraints. It's essential to recognize that nonadherence to antihypertensive medication can have serious implications for patients' health outcomes, as poorly managed hypertension increases the risk of cardiovascular complications.

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| MMAS-8 Score | Number of Patient | Percentage | |
|-----------------------|-------------------|------------|--|
| Low Adherence (>2) | 43 | 86% | |
| Medium Adherence (≤2) | 5 | 10% | |
| High Adherence (<2) | 2 | 4% | |







Conclusion:

In conclusion, the study's findings provide compelling evidence of the high prevalence of pharmacological therapy for hypertension and its positive impact on reducing blood pressure levels within the study population. This underscores the importance of both medical intervention and patient compliance in effectively managing hypertension and reducing associated health risks. In light of these findings, addressing medication adherence is a critical aspect of hypertension management. Healthcare providers need to explore strategies to enhance patient understanding of the importance of adherence, simplify dosing regimens, manage side effects, and provide support for overcoming barriers to adherence.

Conflict of interest:

None

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