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# ANALYSIS OF INTRADIALYTIC BLOOD PRESSURE ABNORMALITIES IN PAKISTAN

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**Abstract:**

***Introduction:*** *High blood pressure is a significant public health problem, with a worldwide prevalence of 40.8% and a control rate of 32.3. High blood pressure is a noteworthy hazard factor for various genuine health conditions, including cardiovascular ailment, cerebrovascular malady, and constant kidney illness.* ***Objectives of the study:*** *The main aim of the study is to find the intradialytic blood pressure abnormalities in Pakistan.* ***Methodology of the study:*** *This study was conducted at Lahore medical and dental college and Lalamusa hospital, Pakistan during 2017. Adult patients who underwent hemodialysis treatments for a minimum of 3 mo were eligible to enter the study. All participants had at least three symptomatic episodes of intradialytic hypotension in the 60 d preceding enrollment. All participants provided written informed consent. The study was approved by the Ethical committee of hospital.* ***Results:*** *Our result shows that there is a significance decrease in BP of dialytic patients. The management of intradialytic hypertension warrants consideration of both the short term and long term consequences of intradialytic hypertension.* ***Conclusion:*** *It is concluded that there are not much studies related to intradialytic blood pressure abnormalities in Pakistan so there is a need of more research in this area. Despite the fact that Intradialytic hypertension is now recognized as a recurrent and persistent phenomenon in a subset of hemodialysis patients.*

**Key words:** *Intradialytic, BP, Hemolysis, Dialysis*

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## INTRODUCTION:

High blood pressure is a significant public health problem, with a worldwide prevalence of 40.8% and a control rate of 32.3. High blood pressure is a noteworthy hazard factor for various genuine health conditions, including cardiovascular ailment, cerebrovascular malady, and constant kidney illness [1]. Worldwide, 9.4 million passing are credited to difficulties from high blood pressure, including 45% of all passing because of coronary vein illness and 51% of all passing because of stroke. These relations are steady in the two people, in youthful, moderately aged, and more seasoned subjects, among different racial and ethnic gatherings, and inside and between nations. In spite of the fact that there is a continuum of cardiovascular hazard crosswise over levels of circulatory strain, the characterization of grown-ups as indicated by pulse gives a system to differentiating levels of hazard related with different circulatory strain classes and for characterizing treatment edges and helpful objectives.

Blood pressure (BP) measurement is a fundamental part of hemodialysis (HD) administration with measurements taken before and after HD and at frequent intervals during treatments. It is well-recognized that these peridialytic and intradialytic BP measurements are poorly reflective of interdialytic BP behavior and overall cardiovascular disease burden. However, such BP measurements are essential for monitoring patient safety during dialysis [3]. Peridialytic BPs and adverse clinical outcomes have a well-described "U"-shaped association, but no prospective studies have established optimal intervention thresholds on either end of the BP spectrum. Overt intradialytic BP abnormalities such as hypotension in a pale, diaphoretic patient or hypertension in a patient with headache and vision change are impossible to ignore. Such drastic presentations spark immediate intervention, and elegant studies demonstrating harm are not needed [4]. While these extreme BP events occur more often than desired, they are relatively infrequent in today's era of bicarbonate-based dialysate and volumetric ultrafiltration (UF).

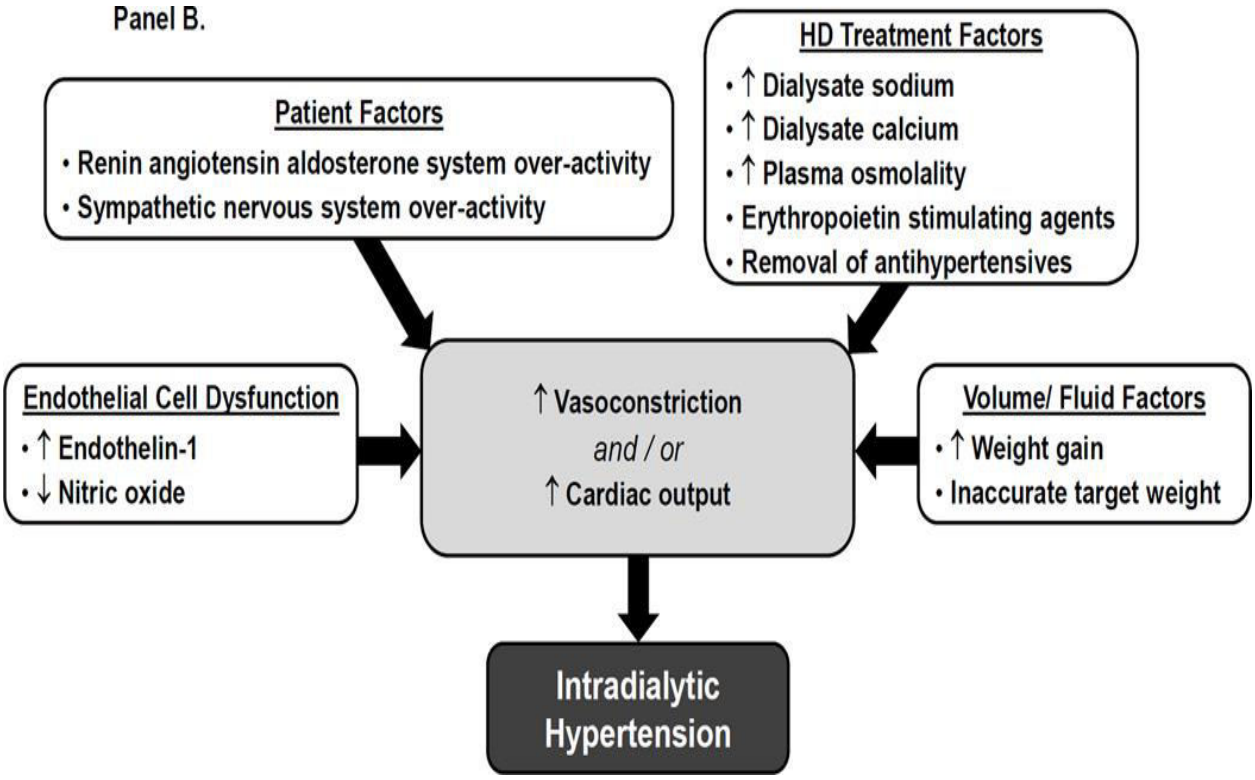


**Figure 01:** Pathophysiology of hypertension

Elevated blood pressure (BP) is a causal risk factor for cardiovascular disease (CVD) [5]. In addition, randomized clinical trials among people with high blood pressure have illustrated, in total, a decrease in CVD occasions by 20%, coronary illness (CHD) by 17%, stroke by 27%, and heart disappointment by 28% for each 10 mm Hg systolic BP (SBP) bringing down with medicinal treatment. In this manner, counteractive action, location, treatment, and control of lifted BP, and its clinical connect high blood pressure, is a critical general health need and an essential focus for CVD aversion [6].

**Objectives of the study**

The main aim of the study is to find the intradialytic blood pressure abnormalities in Pakistan.

## METHODOLOGY OF THE STUDY:

This study was conducted at Lahore medical and dental college and Lalamusa hospital, Pakistan during 2017. Adult patients who underwent hemodialysis treatments for a minimum of 3 mo were eligible to enter the study. All participants had at least three symptomatic episodes of intradialytic hypotension in the 60 d preceding enrollment. All participants provided written informed consent. The study was approved by the Ethical committee of hospital.

**Statistical analysis**

The collected data were analyzed using SPSS software (version 17). The results are presented as a mean with 95% confidence interval limits or standard deviations. The significant value for P <.05 was accepted as statistically significant.

## RESULTS:

Our result shows that there is a significance decrease in BP of dialytic patients. The management of intradialytic hypertension warrants consideration of both the short term and long term consequences of intradialytic hypertension. One case control study showed that ambulatory BP was higher in intradialytic hypertension patients compared to other hypertensive HD patients whose BP decreased during dialysis (Table 01).

**Table 01:** analysis of patients with intradialytic hypertension

| Pre HD SBP (mmHg) | Post HD SBP (mmHg) | Low SBP (mmHg) | Pre HD Weight (kg) | Post HD Weight (kg) | Target Weight | Weight Gain (kg) | Dialysate Na (mg/dL) | Serum Na (mg/dL) |
|---|---|---|---|---|---|---|---|---|
| 157 | 183 | 139 | 74.6 | 70.5 | 70.5 | 5.0 | 140 | 135 |
| 169 | 140 | 125 | 75.3 | 70.6 | 70.5 | 4.8 | 140 | |
| 145 | 163 | 140 | 75.7 | 70.5 | 70.5 | 5.1 | 140 | |
| 167 | 176 | 139 | 74.5 | 70.3 | 70.5 | 4 | 140 | 136 |
| 148 | 169 | 128 | 75 | 70.4 | 70.5 | 4.7 | 140 | |
| 145 | 155 | 130 | 75.8 | 70.6 | 70.5 | 5.4 | 140 | |

## DISCUSSION:

The pathophysiologic mechanisms underlying intradialytic hypotension provide insight into potential management strategies. Dialysate sodium, plasma albumin and the magnitude of hydrostatic capillary force all influence plasma refill [7]. Exposures to higher dialysate serum sodium gradients increase fluid mobilization into the intravascular space. Similarly, higher plasma osmolality, associated with greater albumin levels, enhances refill. Intradialytic osmolality decline from uremic toxin removal and sodium gradient equilibration lead to slowed vascular refill over the treatment course [8]. Procedural factors such as warm dialysate, acetate buffer or eating during dialysis increase hypotension risk by decreasing peripheral resistance. Autonomic dysfunction and impaired baroreceptor sensitivity dampen the compensatory cardiac responses to these blood volume reductions. Cardiac abnormalities such as diastolic dysfunction, atrial

fibrillation, left ventricular hypertrophy, and ischemic heart disease also contribute. When compensatory responses for reduced cardiac filling reach their limits, BP falls [9].

While less common than intradialytic hypotension, intradialytic hypertension is another BP phenomenon with important prognostic significance. Patient and clinical characteristics associated with intradialytic BP rise include older age, lower body weight, lower serum creatinine and albumin, and utilization of more antihypertensive medications. The prevalence of intradialytic hypertension ranges 5–15% among maintenance HD patients, depending on the definition [10]. Currently, there is no universally accepted definition of intradialytic hypertension. It is typically defined as BP increase during or immediately after HD, resulting in post-HD BP

>130/80 mmHg, the KDOQI hypertension threshold [11]. Clinical investigations of this BP abnormality have used a range of definitions with varied thresholds of systolic BP or MAP increase (≥10 or 15 mmHg). Others have selected more general definitions such as hypertension late in dialysis after the occurrence of the majority of UF or BP rise resistant to UF. Some definitions are limited to subpopulations such as patients with de novo hypertension with ESA initiation, narrowing generalizability [12].

## CONCLUSION:

It is concluded that there are not much studies related to intradialytic blood pressure abnormalities in Pakistan so there is a need of more research in this area. Despite the fact that Intradialytic hypertension is now recognized as a recurrent and persistent phenomenon in a subset of hemodialysis patients. There continues to be epidemiologic evidence that intradialytic hypertension is associated with an increased risk for adverse outcomes that is comparable to patients that have excessive and dramatic decreases in BP during HD.

## REFERENCES:


1. Inrig J, Patel U, Toto R, Szczech L. Association of blood pressure increases during hemodialysis with 2-year mortality in incident hemodialysis patients: a secondary analysis of the Dialysis Morbidity and Mortality Wave 2 Study. American Journal of Kidney Diseases. 2009;54:881–890.
2. Van Buren P, Kim C, Toto R, Inrig J. The prevalence of persistent intradialytic hypertension in a hemodialysis population with extended follow-up. International Journal of Artificial Organs. 2012;35:1031–1038.
3. Gunal A, Karaca I, Celiker H, Ilkay E, Duman S. Paradoxical rise in blood pressure during ultrafiltration is caused by increased cardiac output. Journal of Nephrology. 2002;15:42–47.
4. Raj D, Vincent B, Simpson K, et al. Hemodynamic changes during hemodialysis: Role of nitric oxide and endothelin. Kidney International. 2002;61:697–704.
5. Palmer B. Dialysate Composition in Hemodialysis and Peritoneal Dialysis. 4. Philadelphia: Lippincott Williams and Wilkins; 2009.
6. Van Stone J, Bauer J, Carey J. The effect of dialysate sodium concentration on body fluid distribution during hemodialysis. Trans American Society of Artificial Internal Organs. 1980;26:383–386.
7. Van Buren P, Kim C, Toto R, Inrig J. Intradialytic Hypertension and the association with interdialytic ambulatory blood pressure. Clinical Journal of the American Society of Nephrology. 2011;6:1684–1691.
8. Inrig J. Antihypertensive agents in hemodialysis: a current perspective. Seminars in Dialysis. 2010;23:290–297.
9. Sang G, Kovithavongs C, Ulan R, Kjellstrand C. Soidum ramping in hemodialysis: a study of beneficial and adverse effects. American Journal of Kidney Diseases. 1997;29:669–677
10. Agarwal R, Peixoto AJ, Santos SF, Zoccali C. Pre- and postdialysis blood pressures are imprecise estimates of interdialytic ambulatory blood pressure. Clin J Am Soc Nephrol. 2006;1:389–398.
11. Zager PG, Nikolic J, Brown RH, Campbell MA, Hunt WC, Peterson D, Van Stone J, Levey A, Meyer KB, Klag MJ, Johnson HK, Clark E, Sadler JH, Teredesai P. "U" Curve association of blood pressure and mortality in hemodialysis patients. Medical directors of dialysis clinic, inc. Kidney Int. 1998;54:561–569.
12. Park J, Rhee CM, Sim JJ, Kim YL, Ricks J, Streja E, Vashistha T, Tolouian R, Kovesdy CP, Kalantar-Zadeh K. A comparative effectiveness research study of the change in blood pressure during hemodialysis treatment and survival. Kidney Int. 2013;84:795–802.
13. Rahman M, Griffin V, Kumar A, Manzoor F, Wright JT, Smith MC. A comparison of standardized versus "Usual" Blood pressure measurements in hemodialysis patients. Am J Kidney Dis. 2002;39:1226–1230.