

PREVALENCE AND TYPES OF INTRA-DIALYTIC COMPLICATIONS IN PATIENTS DIALYSING AT THE UNIVERSITY OF BENIN TEACHING HOSPITAL

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INTRODUCTION

- Haemodialysis is the main mode of renal replacement therapy in Nigeria. ^{1,2} Despite the improvement in the safety of dialysis over the years, complications are still encountered.
- There have been an evolution in the spectrum of complications encountered during dialysis in recent years due to availability of biocompatible dialyzers, hence severe allergic reactions are not frequently seen during HD now
- There are recent advances in HD techniques, but these have not significantly reduced the frequencies of certain complications such as intradialytic hypotension. ³
- The importance of intradialytic complications cannot be overemphasized as they have impact on the quality of life, mortality and morbidity of patients on HD. ⁴

METHODOLOGY

- This was a descriptive retrospective study in which records of patients who had haemodialysis (HD) over a one year period were reviewed.
- The socio-demographic information, aetiology of renal disease, number of HD sessions, blood pressure readings during HD and recorded complications were obtained.

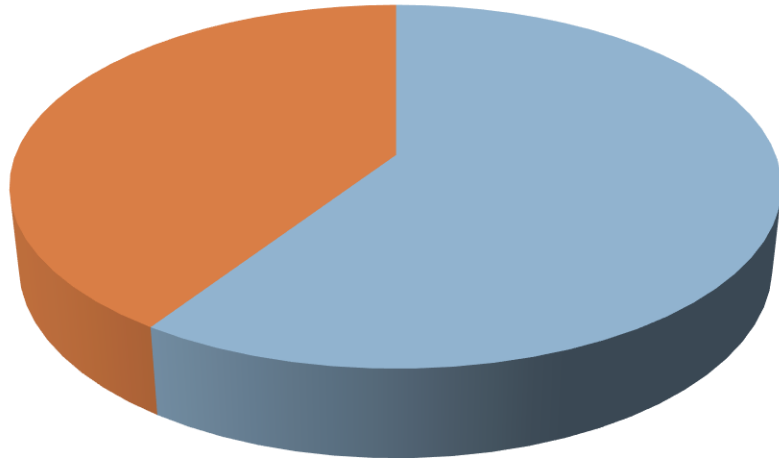
- Intradialytic hypotension was defined as proposed by the K/DOQI guidelines and approved by the European renal best practice (ERBP) of hemodynamic as a decrease in systolic blood pressure ≥ 20 mmHg or a decrease in the mean arterial pressure (MAP) by 10 mmHg associated with clinical events and need for nursing interventions.⁴
- Intradialytic hypertension was defined as an increase in systolic blood pressure of ≥ 10 mmHg during or at the end of HD.⁵
- The data was analysed using SPSS version 16.



RESULTS AND DISCUSSION

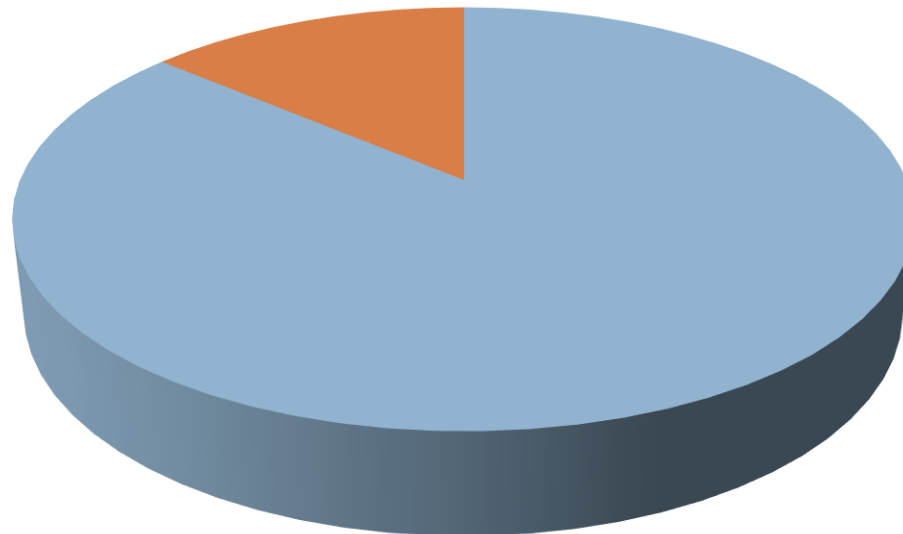
- 861 sessions of HD in 167 patients (99 males, 68 females) were reviewed.
- The mean age of males and females were 48.77 ± 15.39 years and 40.75 ± 15.29 years respectively; this difference was statistically significant ($p=0.001$)
- The mean age of patients who had ESRD was 46.73 ± 15.54 years
- The mean HD sessions was 5.16 ± 9.17 .

GENDER



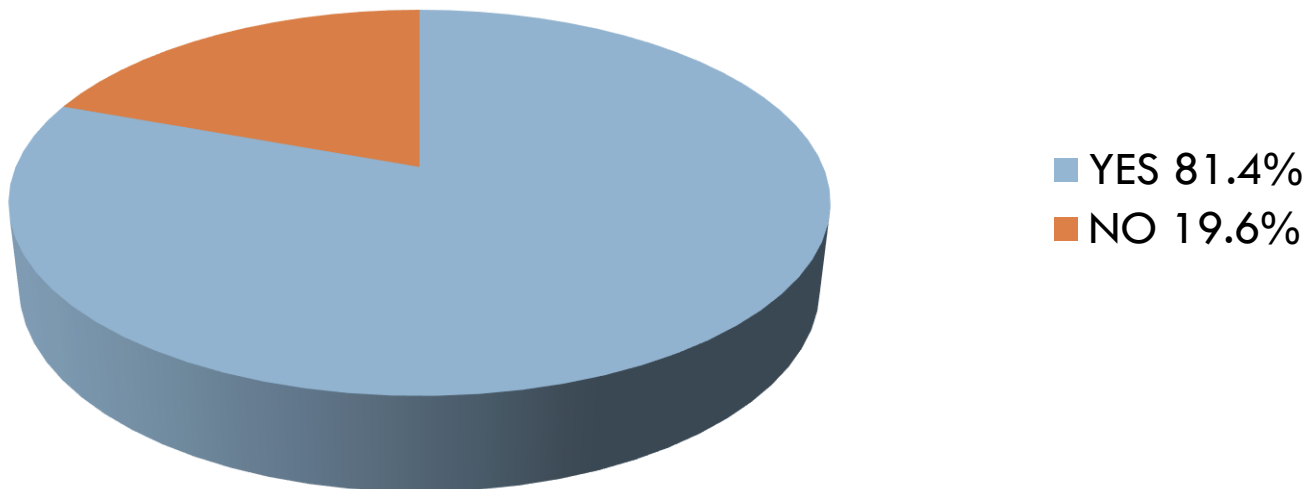
■ 99 Males
■ 68 Females

DIAGNOSIS

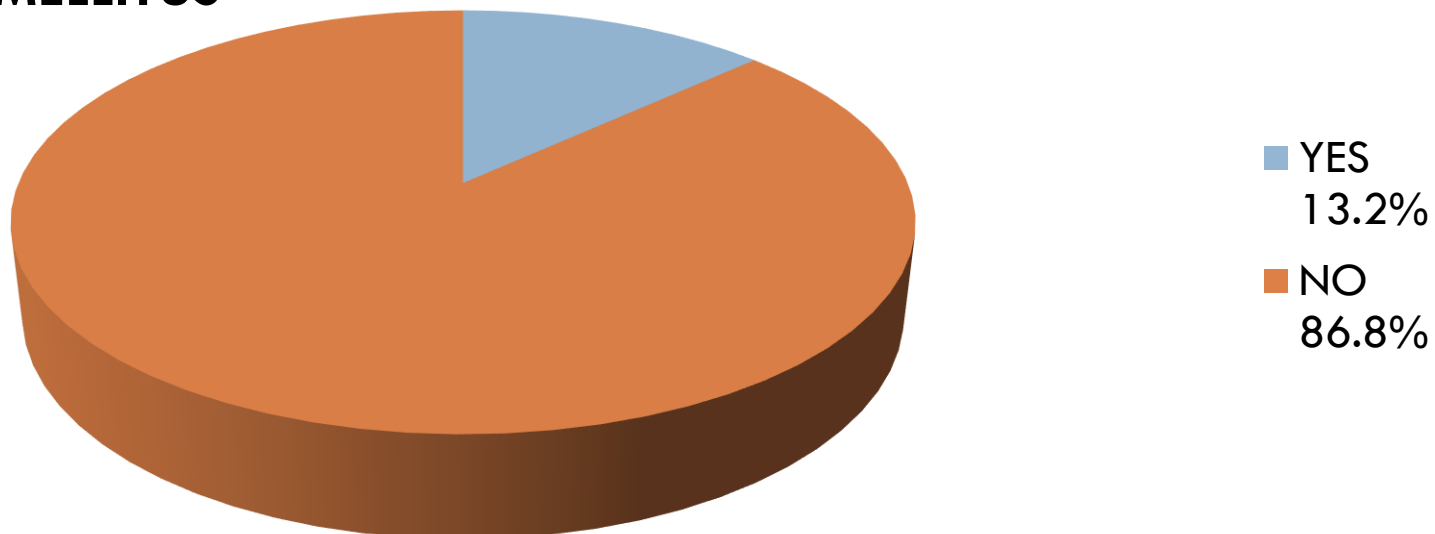


■ CKD 86.2%
■ AKI 13.8%

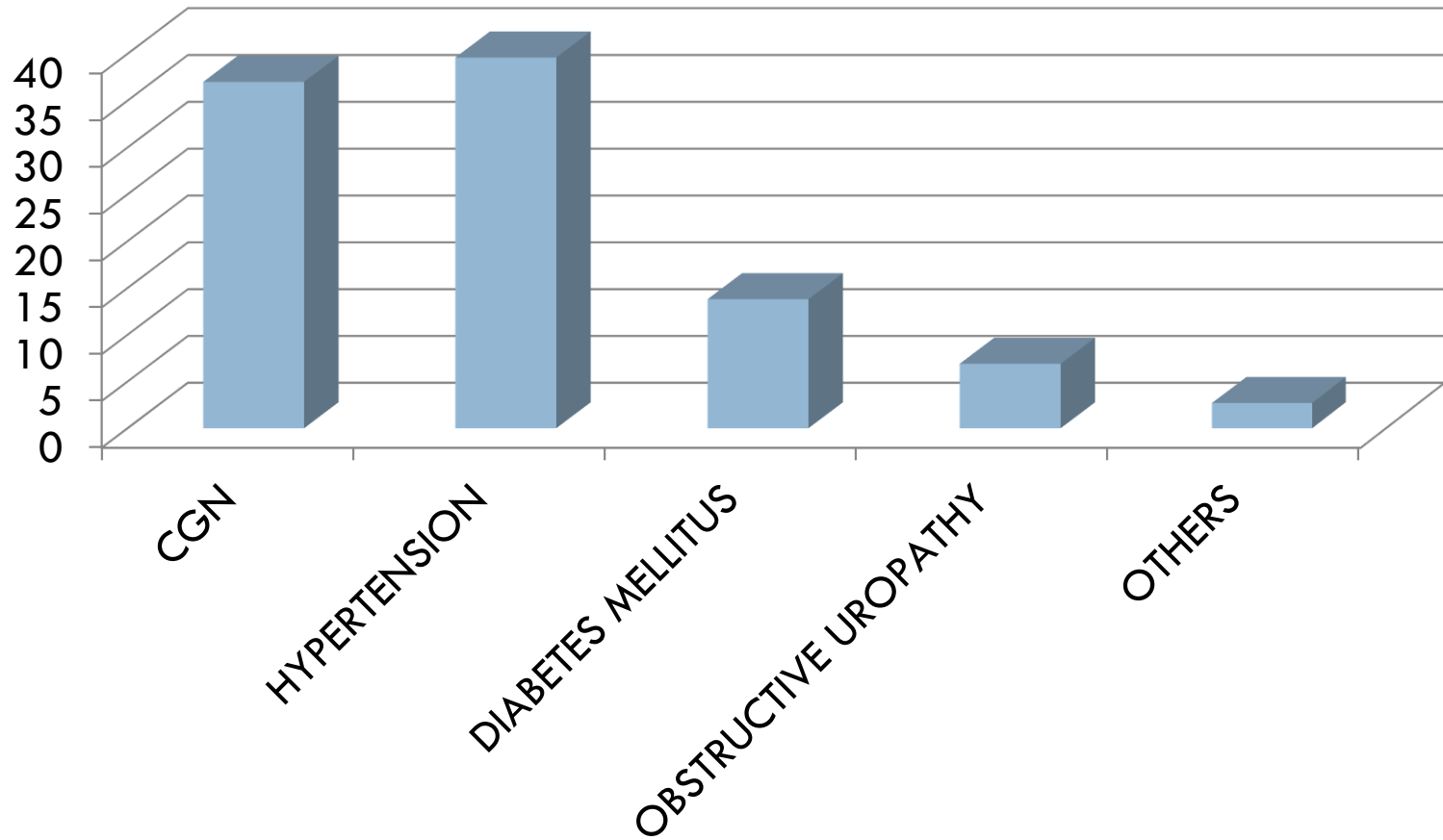
HYPERTENSION



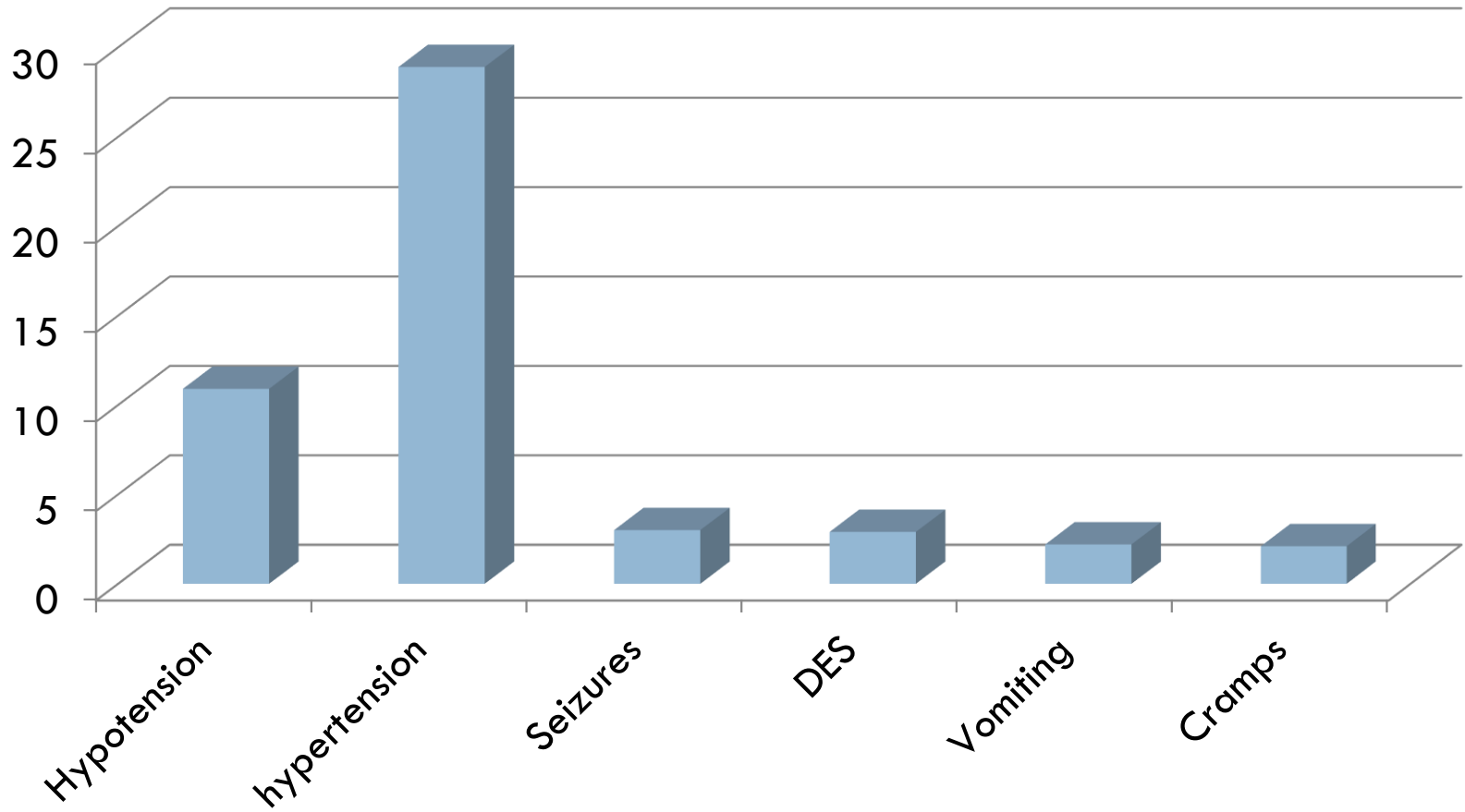
DIABETES MELLITUS



AETIOLOGY OF ESRD



COMMON INTRADIALYTIC COMPLICATIONS



- Most of our patients with ESRD were in their 3rd to 5th decade of life with a male preponderance. This is similar to previous reports in Nigeria.^{7,8,9}
- Hypertension and CGN are the leading causes of ESRD in our study. Other studies in different parts Nigeria corroborated this findings.^{7,10}

- IDH was found in 10.9% of our HD sessions. This is similar to previous studies in the past that showed a prevalence of 6-27%.^{11,12}
- Factors contributing to IDH include age, ultrafiltration, anaemia, preexisting cardiac disease, autonomic neuropathy to mention a few. Our study did not however examine factors that predicts IDH.
- IDH can cause rapid loss of residual renal function, mesenteric infarction, CVA, MI, dysarrythmias, thrombosis of vascular access and even death.^{13,14} It is also a predictor of mortality in patients undergoing haemodialysis.¹⁵
- IDH can also delay recovery of renal function in those with acute kidney injury. IDH precludes the delivery of adequate doses of dialysis.

- Intradialytic hypertension was found in 28.9% of our HD sessions. Intradialytic hypertension has been found to occur in 8-30% of HD sessions.¹⁶
- Majority of our patients were hypertensive (81.4 %), hence the high prevalence of intradialytic hypertension may be a reflection of poor ambulatory interdialytic blood pressure control in these patients.¹⁷
- Most of our patients cannot afford adequate dialysis due to severe financial constraints, hence they have excessive interdialytic weight gain and become fluid overloaded. This may also contribute to the intradialytic increase in blood pressure.
- Poor adherence to antihypertensive medications may also be contributory.

- Intradialytic hypertension is associated with higher overall blood pressure burden and impaired endothelial function which predicts increased cardiovascular risks.¹⁸ It can also lead to hypertensive emergencies during haemodialysis.
- Ingin et al showed that there is also higher prevalence of hospitalization in these group of patients , hence leading to increase in mortality and morbidity.¹⁷
- Other less frequent intradialytic complications encountered were fever, chest pain, back pain, bleeding from vascular access, headache and hypoglycaemia which accounted for less than 2% each.

CONCLUSION

- Intradialytic hypertension and hypotension are the commonest complications experienced during HD in UBTH
- It is therefore pertinent for renal physicians, nurses and technicians to be aware of this, promptly recognize and treat these complications and also institute appropriate preventive measures in those who have been identified to be prone to recurrence of these complications as they increase overall morbidity and mortality in these patients

REFERENCES

1. Bamgoye E: Haemodialysis: Management problems in developing countries, with Nigeria as a surrogate. *Kidney International*. 2003, 63(Supplement 83):S93-S95.
2. Alebiosu CO, Ayodele OO, Abbas A, Olutoyin AI: Chronic Renal Failure at the Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria. *Afr Health Sci* 2006, 6(3):132-138.
3. Zuchell P, Santoro A. Dialysis-induced hypotension: A fresh look at pathophysiology. *Blood Purif* . 1993;11:85-98.
4. Laupacis A, Muirhead N, Keown P, Wong C. A disease specific questionnaire for assessing quality of life in patients on hemodialysis. *Nephron* 1992;60:302-6.
5. Basci A, Pizzarelli F. EBPG guideline on haemodynamic instability. *Nephrol Dial Transplant* 2007;22(suppl 2);ii 22-44.
6. Inrig JK, Patel UD, Toto RD, Szczech LA. 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. *Am J Kidney Dis*. 2009 November; 54(5): 881-890
7. Ulasi II, Ijoma CK .The Enormity of Chronic Kidney Disease in Nigeria: The Situation in a Teaching Hospital in South-East Nigeria. *Journal of tropical medicine*. *J Trop Med*. 2010; 2010: 501957.
8. Akinsola W, Odesanmi WO, Ogunniyi JO, Ladipo GO. Diseases causing chronic renal failure in Nigerians-a prospective study of 100 cases. *Afr J Med med Sci* 1989;18:131-7. *Nephrology* 2005;10: (WCN 2005 Abstracts)5, 6(abstr. Suppl 1)
9. Alebiosu CO. Detrimental effects of late referral for dialysis. *Afr J Health Sci*. 2001;8:78-81

10. Arogundade FA, Sanusi AA, Akinsola A. Epidemiology of chronic renal failure in Nigeria: Is there a change in trend? *Nephrology* 2005;10: (WCN 2005 Abstracts)5, 6(abstr. Suppl 1)
11. Civati G, Guastoni C, Teatini U *et al.* High-flux acetate haemodialysis: a single-centre experience. *Nephrology Dialysis Transplant* 1991; 6 [Suppl 2]: 75–81
12. Al Muhanna FA, Saeed I, al Muelo S, Larbi E, Rubaish A. Disease profile, complications and outcome in patients on maintenance haemodialysis at King Faisal University Hospital, Saudi Arabia. *E Afr Med J* 1999; 76: 664–667
13. Chang TI, Paik J, Greene T, Desai M, Bech F *et al.* Intradialytic hypotension and vascular access thrombosis. [J Am Soc Nephrol.](#) 2011 Aug;22(8):1526-33.
14. Port FK, Hulbert-Shearon TE, Wolfe RA, Bloembergen WE, Golper TA, Agodoa LY, Young EW: Predialysis blood pressure and mortality risk in a national sample of maintenance hemodialysis patients. *Am J Kidney Dis* 33:507-517, 1999
15. [Shoji T](#), [Tsubakihara Y](#), [Fujii M](#), [Imai E](#). Hemodialysis-associated hypotension as an independent risk factor for two-year mortality in hemodialysis patients. [Kidney Int.](#) 2004 Sep;66(3):1212-20.
16. Chen J, Gul A, Sarnak MJ. Management of intradialytic hypertension: The on going challenge. *Semin Dial* 2006; 19:141-145
17. Peter N, Buren V, Kim C, Toto R, Inrig KJ. Intradialytic hypertension and the association with interdialytic ambulatory blood pressure. *CJASN* July 2011 vol6 (7); 1684-1691
18. [Inrig JK](#), [Van Buren P](#), [Kim C](#), [Vongpatanasin W](#), [Povsic TJ](#), [Toto RD](#). Intradialytic hypertension and its association with endothelial cell dysfunction. [Clin J Am Soc Nephrol.](#) 2011 Aug;6(8):2016-24