ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 12, Issue, 03, pp.10431-10433, March, 2020

DOI: https://doi.org/10.24941/ijcr.38244.03.2020

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

ARTERIAL HYPERTENSION OF THE BLACK SUBJECT: WHAT IS THE PROFILE OF RESPONSES TO INHIBITORS OF THE RENIN ANGIOTENSIN ALDOSTERONE SYSTEM?

***Loumingou, R., Gandzali-Ngabe P.E. and Mahoungou, G.H.**

Nephrology Department CHU Brazzaville

ARTICLE INFO

Article History:
Received 14th December, 2019
Received in revised form
10th January, 2020
Accepted 28th February, 2020
Published online 28th March, 2020

Key Words:

HTA, Black Subject,
Profile, IEC.

ABSTRACT

Black subjects' hypertension (hypertension) is characterized by high blood pressure, more frequent heart and kidney complications, and ineffective system inhibitors (ACE inhibitors or ARAIIs) as monotherapy. The objective of this work was to evaluate the profile, characteristics of black hypertensive subjects balanced by monotherapy with ACE or ARB II 18 patients with hypertension out of 258 or 8% were balanced by monotherapy with ACE or ARB II. The average age was 38.5 years. The profiles found were; hypertension associated with obesity, sickle cell disease, keloids, polycystosis, and hydronephrosis. Black hypertensive subjects balanced by ACE or ARB II monotherapy are young subjects who often have secondary hypertension.

Citation: ***Loumingou, R., Gandzali-Ngabe P.E. and Mahoungou, G.H.*** **2020.** "Arterial hypertension of the black subject: what is the profile of responses to inhibitors of the renin angiotensin aldosterone system?", *International Journal of Current Research*, 12, (03), 10431-10433.

INTRODUCTION

High blood pressure (hypertension) in the black subject has a higher prevalence, is more severe, develops earlier with a higher percentage of complications affecting the target organs than in the white subject (Pham, 2000). Black populations differ in their living environment, socio-cultural characteristics, access to care of their genetic heritage (Guy Amah, 2007; Ku, 2017). The black subject's hypertension is readily dependent on salt and modifies the prevalence of cardiovascular and renal risk factors, their consequences, their diagnosis, the modalities and effectiveness of their therapeutic management (Cooper, 1997; Ataklte, 2015). Anti-hypertensive agents have unequal efficacy. Diuretics and calcium channel blockers are effective in lowering blood pressure. SRAA inhibitors (ACE inhibitors or ARB II) are ineffective as monotherapy, but would better protect the target organs (Cooper, 1997). We carried out this study to determine the profile of black subjects with hypertension responding to ACE/ARB II as monotherapy, for an optimal pathophysiology approach to hypertension in the black subject.

MATERIALS AND METHODS

We conducted a cross-sectional prospective collection study from January 2017 to December 2018.

We collected the records of hypertensive patients followed in outpatient nephrology consultations and inpatient nephrology at the University Hospital of Brazzaville. Only hypertensive patients balanced by monotherapy with ACE or ARB II were included in the study. The exclusion criteria were: Patients treated with antihypertensive bi or triple therapy, patients treated with diuretics, patients not controlled by monotherapy treatment. The HTA criteria are those of the WHO (World Health organization, 1999). The statistical analysis of the data was carried out using the EPI info 2000 software. The descriptive analysis was obtained by calculating the proportions for the qualitative variables (frequency and percentage).

RESULTS

Socio-demographic characteristics 258 hypertensive patients were followed during the study period. 18 patients (8%) had blood pressure controlled by ACE or ARB II monotherapy, 11 male and 7 female, sex ratio 1.5. The average age was 38.5 years with extremes of 20 - 57 years. The clinical characteristics and etiological aspects of hypertensive patients controlled by ACE or ARB II monotherapy were as follows:

- 4 patients had hypertension grade I
- 6 patients with hypertension grade II
- 4 patients with hypertension grade III,

****Corresponding author:*** **Loumingou, R.,**
Nephrology Department CHU Brazzaville

Grade IV hypertension was found in 4 patients. The associated etiologies were obesity in 4 patients, sickle cell disease in 2 patients, hydronephrosis in 3 patients renal polycystosis in 3 patients, renal atrophy in 1 patient, and essential hypertension in 2 patients. Anti-hypertensive treatment the classes of antihypertensive agents and protocols used in the 258 patients are shown in Table 1.

Anti-hypertensivefamily	n (%)	protocols	n (%)
ACE	60 (24)	monotherapy	148 (52)
ARB II	24 (9)	Bitherapy	75 (28)
calcium channelblockers	110 (43)	triple therapy	30 (8)
diuretics	56 (21)		
B blockers	8 (3)	quadritherapy	5 (2)

DISCUSSION

The black subject's hypertension is influenced by environmental and genetic factors (Guy Amah, 2007; Nad Karmi , 2017). The prevalence of hypertension is increasing among black people living on the African continent who have evolved into a Western lifestyle (Guy Amah, 2007; Steichen, 2010). Therapeutic effectiveness depends on lifestyle changes (sodium diet and adequate potassium intake) and the choice of antihypertensive molecules. Diuretics and calcium channel blockers are effective in lowering blood pressure (Fauvel,?; Laville et al., 2010). Drugs that slow the angiotensive renin system - aldosterone (ACE), sartans and beta-blockers - prescribed as monotherapy reduce blood pressure less in black American hypertensive patients than in white patients, although with high inter-individual variability (Bangalore et al., 2010). According to the findings from our observations, black hypertensive subjects controlled by ACE or ARB II monotherapy are young subjects. The pathologies associated with hypertension in these subjects are characterized by a possible relationship with sodium leakage, glomerular ischemia and stimulation of the angiotensin-aldosterone renin system. Controlled hypertension in sickle cell patients appears to be due to renin stimulation by sodium leakage secondary to sickle cell tubulopathy and glomerular ischemia in relation to chronic hypoxia (Guy Amah, 2007; Howard, 2013). Polycystosis of the kidney is characterized by nephropathy with salt loss, hydronephrosis by glomerular ischemia related to calcareous distension. The control of hypertension observed in patients with these 2 diseases seems to be related to stimulation of the renin system following salt leakage and glomerular ischemia. Keloid scars were also associated with blood pressure control with ACE or ARB II monotherapy. This pathology of the black subject is characterized by skin inflammation disorders (OGAWA, 2017), nephrosclerosis and atherosclerosis lesions (Harriet, 1995) related to increased collagen production, which may lead to excessive stimulation of the angiotensive renin aldosterone system.

Obesity has been a factor associated with good blood pressure control, probably through the existence of glomerular hyperfiltration, possible lesions of segmental and focal hyalinosis and a probable stimulation of renin by hyperinsulinism in relation to obesity (Ogawa, 2017). We did not find any detectable causes of hypertension in 2 patients. The diagnosis of essential hypertension seemed likely. Were they patients with haplotype B35? found in 5% of subjects with black rancidity (Maria Gerbase De Lima), or patients with dysplastic kidney? or unknown renovascular pathology?

The limited means of investigation have not allowed you to obtain optimal documentation.

Conclusion

The black hypertensive subject controlled by ACE or ARB II monotherapy is a young obese subject or a carrier of a pathology characterized by sodium leakage, chronic hypoxia or glomerular ischemia. It seems logical to us to recommend an exhaustive metabolic and morphological assessment in search of secondary hypertension in a black hypertensive subject balanced by monotherapy with ACE or Sartan.

Conflict of interest: None.

REFERENCES

Ataklte F., Ergou S., Kaptoge S. et al., 2015. Burden of undiagnosed hypertension in sub-saharan African : a systematic review and meta – analysis. Hypertension., 65 : 291 - 8. doi: 10.1161/HYPERTENSIONAHA.114.04394

Bangalore S., Ogedegbe G., Gyamfi J. et al. Out comes with angiotension-converting Enzyme inhibitors vs other anti hypertensive Agents in Hypertensive Blacks.Y md Med 2015; 128 : 1195 - 203 doi : 10.1016/D.am dd med 2015.04.034

Cooper R., Rotini C., Ataman S. et al., 1997. The prevalence of hypertension in seven populations of west African origin. *Am J Public Health*., 87 : 160 - 8

Dotti DB., Casarini De, cristovan PC et al. 2004. High glucose concentration stimulates intra cellular renim activity and angiotension II generation in rat mesangial cells. Am J Renal physiol, 286 : F1039 – 44

Fauvel, JP., Laville M. High blood pressure of the black subject The Medical Press vol 35 - N°6-C2 - P: 1067 - 1071

Guy Amah, 2008. Bernard I Levy Particularities of high blood pressure in the black African subject Blood Thrombosis vessels volume 19 ; Issue 10, December 2007 DOI: 10. 1684/Sto. 02/3 P: 219-28

Harriet P., Dustan HP. 1995. Does Keloid pathogenesis hold the key to understanding black and white differences in hypertension severity ? Hypertension 26 (6) 858-62

Howard G., Lackland DT., Kleindorfer DO. et al., 2013. Racial différences in the impact of elevated systolic blood pressure on stroke risk *JAMA Intern Med.,* 173: 46-51. doi: 1001/2013. Jama intern med 857.

Maria Gerbase De Lima, Roberta L.F Pauva, Luiz A Bortolotto, HelioBernades - Silva, José J.G De Lima. Human Leu Kocyte Antigens and Malignant essential hypertension. American Journal of Hypertension 1998, volume 11, issue 6, 1 June, Pages 729 – 731

Ku E., Lipkowitz MS., Appel LJ. et al., 2017. Strict blood pressure control associates with decreased mortality risk by APOL 1 genotype. Kidney Int., 91 : 443-50. doi : 10.1016/d. Kint.2016.09.033

Mokwe E., Ohmit SE., Nasser SA. et al., 2004. Determinants of blood pressure response to quinapril in black and white hypertensive patients: the quinapril titration interval management evolution trial. Hypertension 43 : 1202 – 7 doi: 10.1161/01.HYP.0000127924.67353.86

Nad Karmi GN., Galarneau G., Ellis SB. et al. 2017. Apoliprotein L1 variants and Blood Pressure Traits in African Americans. *J Am cardiol*., 69 : 1564 – 74.

Ogawa R. 2017. Cheloid and hypertrophic scars are the result of chronic inflammation in the reticular dermis *Int J. Mol Sei.,* March; 18 (3)

Pham PT. et al., 2000. Renal abnormalities in sickle cell disease. Kidney Int 57 (1) : 1 - 8

Steichen O. 2010. High blood pressure of the black subject Rev Prat; 60: 654 – 659

World Health organization, International Society of Hypertension. Guidelines for the management of hypertension High Blood Pressure Journal 1999; 17 : 151 - 183

****