

435 Racial disparity in the treatment of severe hypertension with labetalol



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OBJECTIVE: Labetalol has been shown to be less effective in the non-pregnant black population compared to other ethnicities in treating hypertension. The objective of this study was to test if there is a correlation between race/ethnicity and blood pressure response to IV labetalol in the pregnant population.

STUDY DESIGN: This was a retrospective study of patients who received IV labetalol for management of severe hypertension (SHTN) in pregnancy, from 10/2013- 12/2017, in an urban hospital. SHTN was defined as a systolic blood pressure ≥ 160 or a diastolic blood pressure ≥ 110 . IV labetalol administration was given based on the ACOG protocol for treatment of SHTN. Patients with multifetal gestation or who were given other anti-hypertensive medications were excluded. The primary outcome was association between race/ethnicity and response to IV labetalol. Chi-square and multi-variable logistic regression models were utilized to determine the association between the proportion of responders and ethnic groups, collectively and at each administration of labetalol.

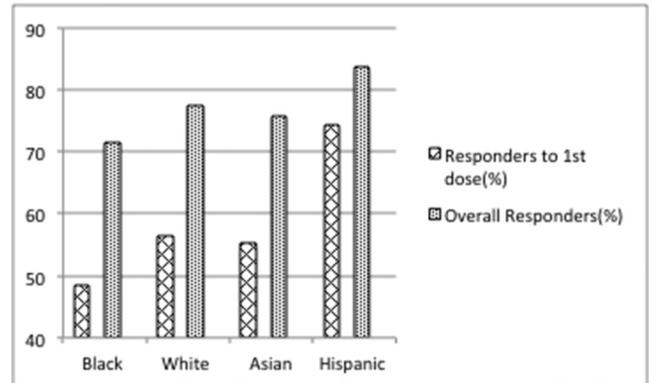
RESULTS: 367 patients received IV labetalol for SHTN. Ethnicity was self-identified by patients. There were 134 Black, 161 White, 29 Asian, and 43 Hispanic patients. White and Asian patients were significantly older than other racial groups while Hispanic and Black patients had a significantly higher BMI ($p < 0.001$). After adjusting for age and BMI, there was a significant association between ethnicity and response to the first dose of labetalol with Hispanic patients being the most responsive, followed by Asian and White patients, and then Black patients being the least responsive ($p = 0.03$) (Figure 1, Figure 2). After the first dose of medication, there was no significant association between race/ethnicity and overall response to labetalol (Figure 2).

CONCLUSION: Our data suggest a significant association between ethnicity and response to the first dose of labetalol, with Black women being the least responsive. A finding not previously seen in the literature was that Hispanic women were the most responsive to labetalol. In the face of a finding of racial disparity in drug efficacy, further studies of a genetic predisposition are suggested.

Figure 1: Response to labetalol administration

Ethnicity	Response at 1 st Push		Overall Responders	
	N	No. Respond (%)	N	No. Respond (%)
Black (N = 134)	134	65 (48.5)	134	96 (71.6)
White (N = 161)	161	91 (56.5)	161	125 (77.6)
Asian (N = 29)	29	16 (55.2)	29	22 (75.9)
Hispanic (N = 43)	43	32 (74.4)	43	36 (83.7)
p-value	0.03		0.39	

Figure 2: Response to the first dose and overall response to labetalol by ethnicity



436 Sildenafil does not prevent blood pressure elevations in hypertensive rats



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OBJECTIVE: Selective reduced uterine perfusion pressure (SRUPP) in rats has become a useful tool in the study of hypertensive disorders of pregnancy. Sildenafil, a phosphodiesterase 5 inhibitor, has been proposed as a treatment for pregnancy disorders associated with faulty placental vascular function. SRUPP is a model of hypertensive disorders of pregnancy with induced placental vascular dysfunction. We hypothesize that the administration of sildenafil will prevent the elevation of blood pressure traditionally seen in the SRUPP model.

STUDY DESIGN: Pregnant Sprague-Dawley rats were divided into one of four groups: sham (n=11), SRUPP (n=8), sham with sildenafil (sham+S) (n=10), and SRUPP with sildenafil (SRUPP+S) (n=11). On gestational day (GD) 13 the rats underwent MAP analysis by tail cuff plethysmography. On GD14, rats were anesthetized with 2% isoflurane and the abdomen entered through a midline vertical incision. Fetuses were counted, uterine and utero-ovarian arteries were identified and surgically isolated from the surrounding adipose tissue. In the SRUPP and SRUPP+S groups, silver clips (0.102mm internal diameter) were placed on the aforementioned vessels bilaterally while the sham and sham+S groups' vessels were solely isolated. The rats were returned to their home cages after surgery. From GD14 to GD20 the SRUPP+S and sham+S groups were fed 20g per day of rat chow compounded with sildenafil at an inclusion rate of 625mg/kg diet with the goal to deliver 50mg/kg/day (sildenafil 12.5mg/d). The remaining groups were given 20g of similar rat chow without sildenafil. On GD20, MAP was obtained and the rats were terminally anesthetized with isoflurane on GD21.

Analysis of Variance (ANOVA) with post hoc multiple comparison tests were used for statistical analysis. A p value of < 0.05 determined statistical significance.

RESULTS: There was no difference in MAP on GD13 among the four groups. Although there was an increase in MAP between the SRUPP group (80.1+17.25mmHg) compared to the sham(74.82+5.55mmHg), this was not statistically significant. In the SRUPP group the MAP was 80.1+17.25mmHg which was not significantly lower than the SRUPP+S group (85.73+5.43mmHg)($p = 0.995$).