Table 2. Association between subgroups of hypertensive disorders of pregnancy and adverse outcomes.

**A. Cardiovascular outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Superimposed preeclampsia | Preeclampsia | Gestational HTN | Chronic HTN |
| Mortality |
| Unadjusted | 14.25(10.54, 19.26) | 5.93(4.85, 7.24) | 1.17(0.76, 1.81) | 5.45(4.15, 7.15) |
| Adjusted for demographics | 8.35(6.10, 11.44) | 5.32(4.33, 6.54) | 1.19(0.77, 1.84) | 3.70(2.78, 4.93) |
| Adjusted for comorbidities | 2.98(1.94, 4.57) | 2.58(2.02, 3.28) | 0.95(0.61, 1.47) | 2.06(1.46, 2.91) |
| Adjusted for obstetric factors | 14.88(10.98, 20.17) | 6.13(5.00, 7.52) | 1.20(0.78, 1.86) | 5.58(4.25, 7.32) |
| Fully adjusted | 2.31(1.49, 3.57) | 2.64(2.07, 3.38) | 1.02(0.66, 1.57) | 1.68(1.20, 2.37) |
|  Myocardial infarction |
| Unadjusted | 30.64(21.43, 43.81) | 5.64(3.97, 7.99) | 1.15(0.54, 2.44) | 12.19(8.96, 16.63) |
| Adjusted for demographics  | 15.84(10.76, 23.33) | 5.04(3.53, 7.20) | 1.12(0.53, 2.38) | 7.21(5.17, 10.05) |
| Adjusted for comorbidities  | 8.24(4.98, 13.63) | 3.22(2.14, 4.85) | 1.02(0.48, 2.17) | 4.67(3.03, 7.19) |
| Adjusted for obstetric factors | 31.17(21.56, 45.08) | 5.64(3.97, 8.00) | 1.16(0.55, 2.46) | 12.31(8.98, 16.86) |
| Fully adjusted | 5.20(3.11, 8.69) | 3.04(2.02, 4.58) | 1.04(0.49, 2.20) | 3.38(2.22, 5.14) |
| Stroke |
| Unadjusted | 17.53(14.70, 20.90) | 7.44(6.60, 8.39) | 1.41(1.10, 1.82) | 6.18(5.26, 7.27) |
| Adjusted for demographics  | 12.25(10.11, 14.84) | 6.86(6.05, 7.78) | 1.40(1.09, 1.80) | 4.83(4.07, 5.73) |
| Adjusted for comorbidities | 9.27(7.48, 11.48) | 5.71(5.04, 6.48) | 1.35(1.05, 1.73) | 3.81(3.16, 4.60) |
| Adjusted for obstetric factors | 18.21(15.21, 21.80) | 7.63(6.76, 8.63) | 1.43(1.11, 1.84) | 6.34(5.38, 7.46) |
| Fully adjusted | 7.83(6.25, 9.80) | 5.74(5.04, 6.54) | 1.39(1.08, 1.79) | 3.35(2.76, 4.06) |
| Peripartum cardiomyopathy |
| Unadjusted | 26.68(23.95, 29.71) | 7.68(7.02, 8.40) | 2.32(2.00, 2.69) | 14.46(13.27, 15.74) |
| Adjusted for demographics  | 16.07(14.29, 18.08) | 6.78(6.17, 7.45) | 2.20(1.89, 2.56) | 9.90(9.03, 10.85) |
| Adjusted for comorbidities | 5.49(4.56, 6.60) | 3.49(3.13, 3.89) | 1.76(1.50, 2.08) | 4.70(4.12, 5.35) |
| Adjusted for obstetric factors | 26.58(23.81, 29.67) | 7.45(6.80, 8.16) | 2.31(1.99, 2.69) | 14.54(13.33, 15.86) |
| Fully adjusted | 4.37(3.64, 5.26) | 3.28(2.94, 3.65) | 1.74(1.48, 2.05) | 3.77(3.29, 4.32) |
| Arrhythmia |
| Unadjusted | 3.76(3.04, 4.65) | 1.44(1.25, 1.65) | 1.11(0.95, 1.31) | 4.96(4.44, 5.54) |
| Adjusted for demographics | 2.53(1.98, 3.24) | 1.43(1.22, 1.67) | 1.09(0.90, 1.30) | 3.54(3.09, 4.07) |
| Adjusted for comorbidities | 1.51(1.18, 1.92) | 0.99(0.85, 1.14) | 0.98(0.83, 1.15) | 2.80(2.47, 3.17) |
| Adjusted for obstetric factors | 3.63(2.93, 4.49) | 1.37(1.19, 1.58) | 1.11(0.94, 1.30) | 4.87(4.36, 5.45) |
| Fully adjusted | 1.16(0.88, 1.53) | 0.98(0.83, 1.16) | 0.98(0.81, 1.17) | 2.18(1.87, 2.53) |

**B. Obstetric outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Superimposed preeclampsia | Preeclampsia | Gestational HTN | Chronic HTN |
| Preterm birth |
| Unadjusted | 5.94(5.74, 6.15) | 3.68(3.60, 3.77) | 0.99(0.96, 1.02) | 1.54(1.51, 1.57) |
| Adjusted for demographics | 5.26(5.07, 5.45) | 3.54(3.45, 3.63) | 1.00(0.97, 1.03) | 1.44(1.41, 1.47) |
| Adjusted for comorbidities | 5.28(5.09, 5.47) | 3.57(3.49, 3.65) | 0.98(0.95, 1.01) | 1.40(1.37, 1.43) |
| Adjusted for obstetric factors | 5.56(5.36, 5.77) | 3.23(3.16, 3.31) | 0.92(0.89, 0.94) | 1.42(1.39, 1.45) |
| Fully adjusted | 4.65(4.48, 4.83) | 3.05(2.98, 3.13) | 0.93(0.91, 0.96) | 1.26(1.23, 1.28) |
| Placental abruption |
| Unadjusted | 2.77(2.62, 2.93) | 2.46(2.40, 2.53) | 1.12(1.08, 1.17) | 1.62(1.56, 1.68) |
| Adjusted for demographics | 2.40(2.26, 2.54) | 2.41(2.34, 2.48) | 1.14(1.10, 1.18) | 1.48(1.42, 1.53) |
| Adjusted for comorbidities | 2.57(2.42, 2.72) | 2.39(2.33, 2.46) | 1.12(1.08, 1.17) | 1.56(1.50, 1.62) |
| Adjusted for obstetric factors | 2.62(2.48, 2.78) | 2.35(2.28, 2.41) | 1.12(1.07, 1.16) | 1.59(1.53, 1.66) |
| Fully adjusted | 2.22(2.09, 2.36) | 2.27(2.21, 2.34) | 1.14(1.10, 1.19) | 1.44(1.38, 1.49) |
| Stillbirth |
| Unadjusted | 2.88(2.70, 3.08) | 1.62(1.56, 1.68) | 0.60(0.57, 0.64) | 2.28(2.19, 2.38) |
| Adjusted for demographics | 2.27(2.12, 2.42) | 1.52(1.46, 1.58) | 0.60(0.56, 0.63) | 1.92(1.84, 2.01) |
| Adjusted for comorbidities | 2.23(2.08, 2.39) | 1.52(1.46, 1.58) | 0.59(0.56, 0.63) | 1.94(1.86, 2.03) |
| Adjusted for obstetric factors | 2.68(2.51, 2.87) | 1.40(1.34, 1.46) | 0.59(0.55, 0.63) | 2.25(2.15, 2.34) |
| Fully adjusted | 1.78(1.66, 1.92) | 1.28(1.23, 1.33) | 0.58(0.54, 0.61) | 1.68(1.60, 1.75) |
| Postpartum hemorrhage |
| Unadjusted | 1.79(1.69, 1.89) | 2.47(2.39, 2.56) | 1.45(1.41, 1.48) | 1.27(1.23, 1.30) |
| Adjusted for demographics | 1.79(1.70, 1.88) | 2.46(2.39, 2.54) | 1.49(1.46, 1.52) | 1.31(1.27, 1.35) |
| Adjusted for comorbidities | 1.59(1.49, 1.69) | 2.31(2.22, 2.40) | 1.41(1.38, 1.44) | 1.20(1.17, 1.24) |
| Adjusted for obstetric factors | 1.80(1.70, 1.91) | 2.46(2.37, 2.55) | 1.45(1.42, 1.49) | 1.26(1.23, 1.30) |
| Fully adjusted | 1.65(1.56, 1.74) | 2.31(2.24, 2.39) | 1.47(1.43, 1.50) | 1.27(1.23, 1.30) |

HTN, hypertension. HIV, human immunodeficiency virus. AIDS, acquired immunodeficiency syndrome.

a Data expressed as odds ratios and 95% confidence intervals, reference group is no HDP.

b Adjustment for demographics include: year of admission, age, weekday/weekend admission, elective admission, primary payer, race/ethnicity, median ZIP code income quartile, hospital region and hospital location / teaching status, and hospital size.

c Adjustment for comorbidities include: smoking, congenital heart disease, dyslipidemia, previous stroke, and selected Elixhauser comorbidity measures (obesity, heart failure, diabetes, valvular disease, pulmonary circulation disorders, peripheral vascular disease, other neurological disorders, chronic pulmonary disease, hypothyroidism, renal failure, liver disease, HIV and AIDS, rheumatoid arthritis/collagen vascular diseases, fluid and electrolyte disorders, deficiency anemias, alcohol abuse, drug abuse, depression).

d Adjustment for obstetric factors include: gestational diabetes, fetal growth restriction, placenta previa, and multiple pregnancy.

e Full adjustment include demographics, comorbidities and obstetric factors as described above.