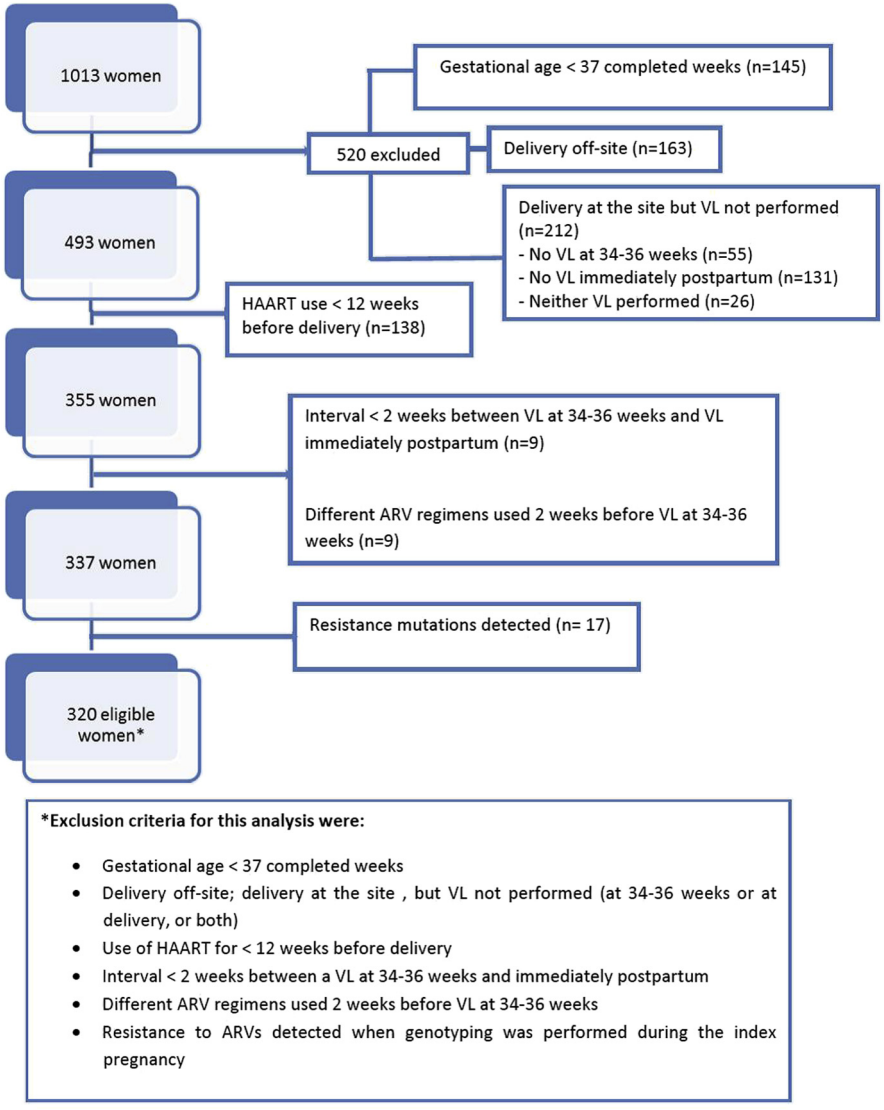
Correlation between viral loads performed at 34-36 weeks and in the immediate postpartum period in HIV-infected pregnant women using HAART

OBJECTIVE: Cesarean delivery before labor and before ruptured membranes is efficacious in the prevention of mother-to-child transmission (MTCT) of HIV.[1] However, cesarean delivery is associated with maternal and infant morbidity,[1] and viral load (VL; copies per milliliter) results at delivery often are not available. A VL at 34-36 weeks of gestation may predict the VL around delivery and, thus, indicate the need for cesarean delivery. Our objective was to evaluate the correlation between a VL at 34-36 weeks of gestation and in the immediate postpartum period (imPP)

FIGURE
Study population derivation



Exclusion criteria are given for this analysis.

ARV, antiretroviral; *HAART*, highly active antiretroviral therapy; *HIV*, human immunodeficiency virus; *VL*, viral load.

Gouvea. Correlation between VLs in HIV-infected pregnant women. Am J Obstet Gynecol 2015.

in a cohort of HIV-infected pregnant women using highly active antiretroviral therapy (HAART) at a referral center in Rio de Janeiro, Brazil (Hospital Federal dos Servidores do Estado; HFSE) from January 2007 to September 2013.

STUDY DESIGN: Data were extracted from the HFSE database. According to the HFSE institutional review board, informed consent for this analysis was not required. The exclusion criteria are shown in the Figure. The correlation between 2 VLs was evaluated by the Pearson correlation coefficient (r). The Cohen kappa (κ) of the antepartum VL was calculated in relation to the imPP VL, with cutoff values of $\leq$50, $\leq$400, and $\leq$1000 copies/mL. Covariates that were statistically significant ($P \leq .15$) in univariate analysis were included in multivariable analysis. Only variables with a probability value of $\leq .05$ remained in the multivariate model. Statistical analysis was performed with SPSS WIN software (version 16.0; SPSS Inc, Chicago, IL).

RESULTS: Of 1013 HIV-infected women at HFSE with 1114 pregnancies, 693 women were excluded from the analysis (Figure). Thus, the study population comprised 320 women. Comparison of the VL at 34-36 weeks of gestation and imPP revealed Pearson's correlation coefficient of r = 0.71 ($P < .001$). The κ coefficient was 0.44 for VL $\leq$50 copies/mL, 0.60 for VL of $\leq$400 copies/mL, and 0.68 for VL if $\leq$1000 copies/mL (all $P < .001$). Of women with a VL of >50 copies/mL at 34-36 weeks of gestation, the covariates associated with VL of <50 copies/mL imPP were nulliparity (odds ratio, 5.2; 95% confidence interval, 1.51−18.0) and not having had a sexually transmitted infection during the index pregnancy (odds ratio, 3.1; 95% confidence interval, 1.17−8.26). Using VL cutoff values of $\leq$50, $\leq$400, and $\leq$1000 copies/mL, the proportions of women who maintained and who achieved such VLs were 74% (60% [192/320] and 14% [45/320] = 237/320), 88% (82% [262/320] and 6% [18/320] = 280/320), and 90% (86% [277/320] and 4% [12/320] =289/320), respectively. Eighty-one percent of women with a VL of $\leq$50 copies/mL imPP had a VL of <50 copies/mL at 34-36 weeks of gestation, and 96% of women with a VL of $\leq$200 copies/mL imPP had a VL of <200 copies/mL at 34-36 weeks of gestation.

CONCLUSION: In our study, VLs that were performed at 34-36 weeks of gestation were correlated with VLs imPP. In a French study,[2] in a multivariate analysis at 30 ± 4 weeks, VL was the only factor to be associated independently with MTCT of HIV, when analyzed together with CD4+ cell counts and the timing of initiation of antiretrovirals. Similar results were found by other authors,[3] emphasizing the crucial role of VL in MTCT. In current medical practice, when real-time VL measurement at delivery may not be feasible, a VL performed at 4-6 weeks of gestation before delivery can be a reliable predictor of the VL at delivery and thus can be a useful tool for indicating the appropriate mode of delivery. ■

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