Bone Turnover Marker Trajectories in Postpartum Women Living with HIV Compared to Women Without HIV

L-05

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BACKGROUND

- We postulated that women living with HIV (WLH) taking ART would not have complete postpartum bone biomarker recovery observed in women without HIV.
- We compared bone biomarkers in postpartum WLH and without, and by postpartum status in WLH.

METHODS

- Cohort of WLH and age-and-parity-matched women without HIV in Malawi and Uganda,
- Assessments at entry, delivery, and postpartum/post-entry visits (6-weeks, 6-months, 12-months, 24-months and 30/36-months).
- We fitted linear mixed-effect models for each biomarker (outcome).
- Spearman's rank correlation between
  a) each bone mineral density (BMD), g/cm², variable (total hip, lumbar spine and femoral neck) and each biomarker was estimated at each time point; and
  b) area under the curve (AUC) of each BMD variable and the AUC of each biomarker was estimated.

Figure 1: Mean (95% confidence intervals) bone biomarker value at each time point for postpartum women, stratified by HIV status

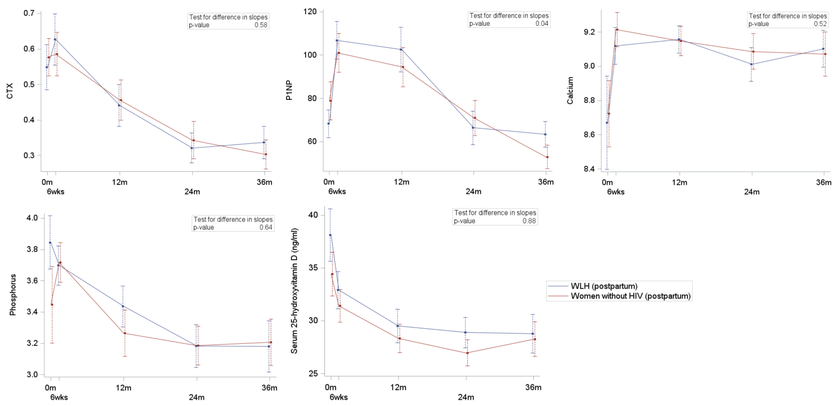


Figure legend: BMD – Bone Mineral Density; CTX–1 – C–terminal telopeptide of type I collagen (bone resorption marker); P1NP, amino–terminal propeptide of type 1 procollagen (bone formation marker); WLH – Women living with HIV; Study visits (6 weeks, 12 months, 24 months and 36 months

Reassuringly, our real-world data demonstrating typical postpartum bone chemistry patterns observed in women without HIV were not different in WLH.

Figure 2: Mean (95% confidence intervals) bone biomarker value at each time point for women living with HIV, stratified by recent pregnancy status

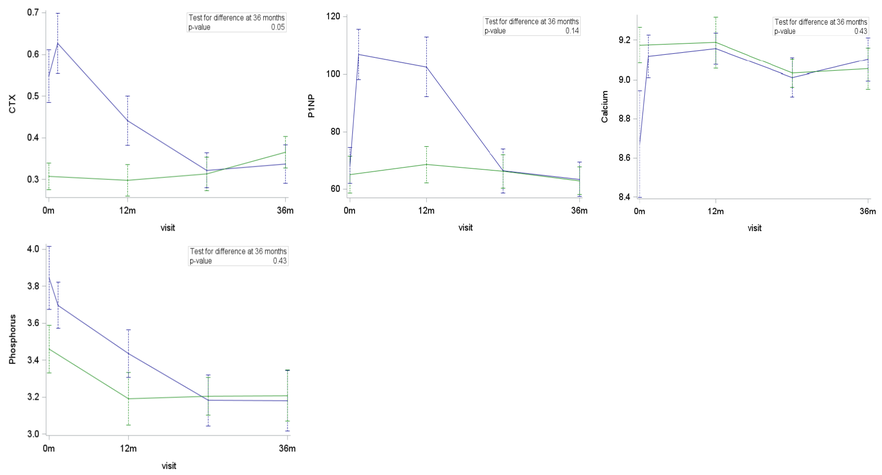


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RESULTS

- Enrolled 312 participants, 109 (35%) pregnant without HIV, 104 (33%) pregnant WLH, and 99 (32%) WLH without recent pregnancy.
- Overall, median (IQR) age 33 (30-36) years, and for parity 3 (2-4).
- WLH, ART duration 16 (6-43) months and 185 (91%) virally suppressed.
- Bone turnover markers (CTX-1 and P1NP), calcium, phosphorus and 25-hydroxyvitamin D trajectories from delivery through 30-36 months postpartum were similar in WLH and women without HIV, corroborated by adjusted analyses (p-values >0.05) (**Figure 1).**
- Compared to WLH without a recent pregnancy, WLH at delivery had significantly higher CTX-1 (0.23 ng/mL), phosphorus (0.31 mg/dL) and 25-hydroxyvitamin D (6.41 ng/mL), while calcium was lower (-0.46 mg/dL), p-value<0.01, respectively, with trajectories converging by 12-24 months postpartum (**Figure 2).**
- Overall, there were null or only weak correlations between bone biomarkers and BMD measures at baseline and follow up **(Figure 3).**

Figure 3: Spearman Spearman's rank correlation between each BMD variable and each biomarker at each time point

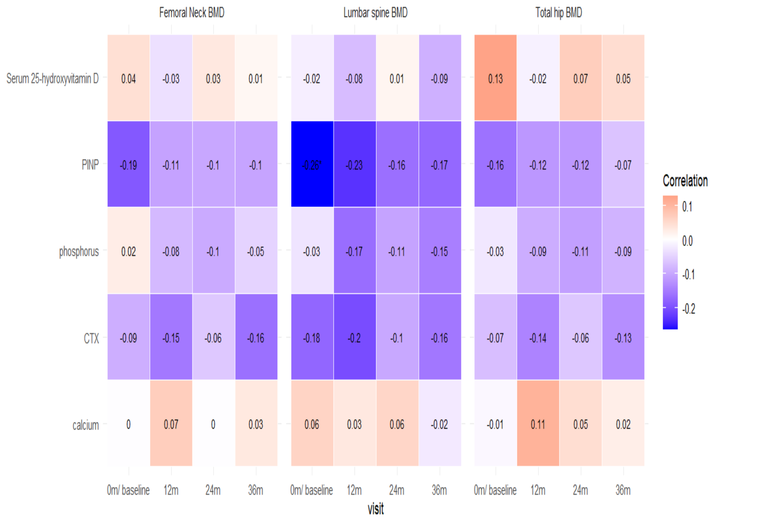


Figure legend: asterisks indicating significant correlations

CONCLUSIONS

- Typical postpartum bone chemistry patterns observed in women without HIV were not different in WLH.
- Additionally, for WLH, postpartum changes normalized by 12-24 months postdelivery.
- Overall, these findings are reassuring for long-term bone health in reproductive-age African WLH receiving ART.

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