ROSUVASTATIN WORSENS VITAMIN K2 STATUS WHICH IMPAIRS BENEFICIAL EFFECT ON BONE IN HIV

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Jared C. Durieux [1], Sokratis N. Zisis [2], Christian F. Mouchati [2], Grace A. McComsey [1,2]
[1]University Hospitals Cleveland Medical Center, Cleveland, Ohio, [2]Case Western Reserve University, Cleveland, Ohio

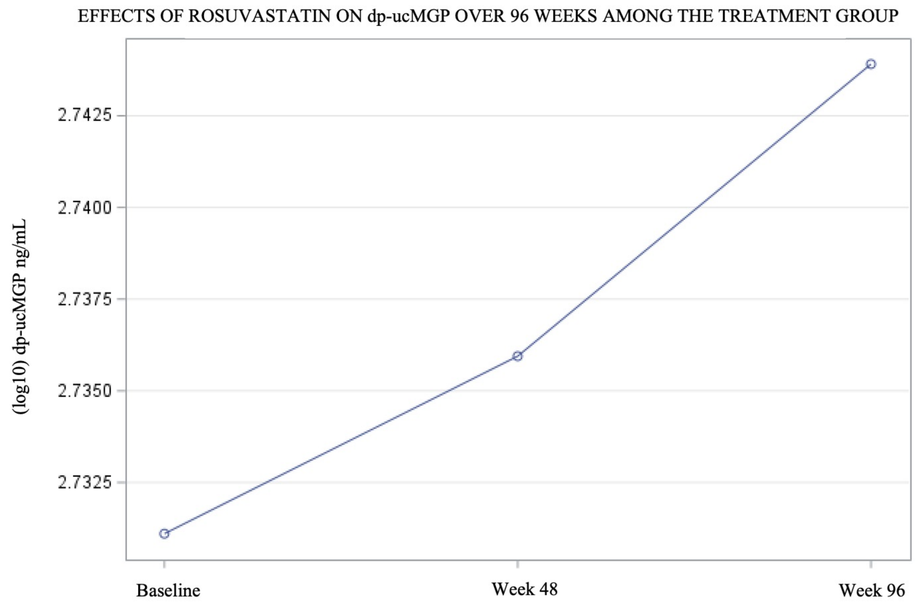
BACKGROUND

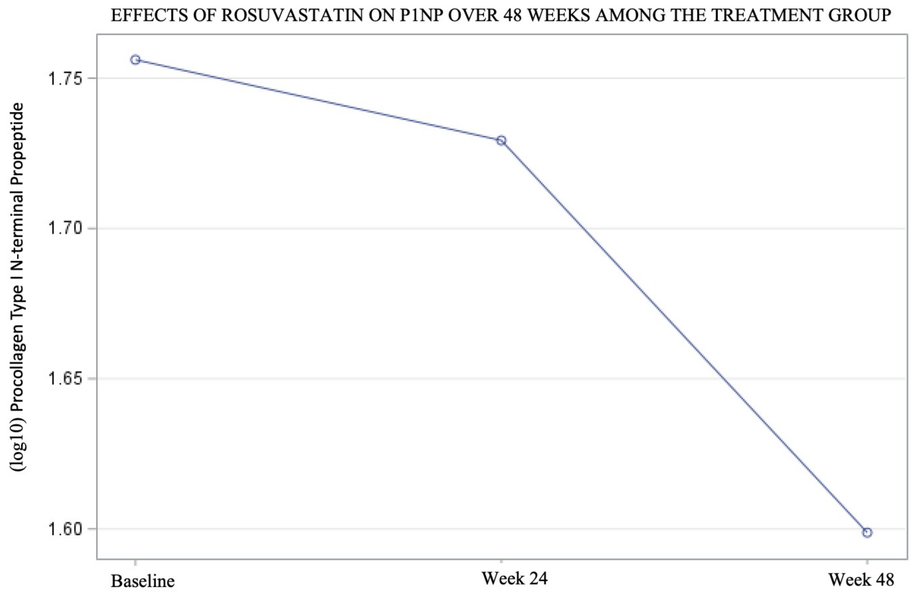
Vitamin K2 has shown a **positive effect on bone health** in the general population but has never been studied in HIV. Recent laboratory data suggested that statins impair vitamin K status, we investigated the **effects of Rosuvastatin on vitamin K** status in the 96-week *SATURN-HIV* clinical trail as a mechanism for the lack of long-term effect on bone health.

METHODS

- Data collected from participants randomized to placebo (n=75) or active treatment (n=72; **Rosuvastatin 10 mg daily**).
- Vitamin K-dependent dephosphorylated-uncarboxylated matrix Gla protein (**MGP**), a marker of K2 status **(poor K2 status=high MGP)**, and bone formation markers including N-terminal propeptide of type-1 collagen (**P1NP**) and osteocalcin (**OCN**) were obtained from plasma samples.
- Bone mineral density (**BMD**) measures of lumbar spine (L1-L4) and femoral neck were assessed by dual-energy absorptiometry.
- Constrained longitudinal analysis of covariance models were used to assess the effect of treatment on MGP, bone markers, and measures of BMD.

Rosuvastatin *increases* **MGP** levels (*worse* vitamin K2)





RESULTS

- *Pretreatment*:
  - Median MGP was 519.25 ng/mL (IQR: 451.15, 593.33)
  - Median P1NP was 54.27 ng/mL (IQR: 38.56, 67.95).
- *Week 48 (Active vs. Placebo)*:
  - **P1NP decreased** (p=0.04).
- *Week 96 (Active vs. Placebo)*:
  - **MGP increased** (p=0.03)
  - **Negative slope observed in femoral BMD** and **OCN** (p>0.05)
  - **Positive slope observed in TNFaRII** and **spine BMD** (p>0.05)

CONCLUSIONS

- **Rosuvastatin has a *negative effect* on vitamin K2 *and* P1NP** in people living with HIV on antiretroviral treatment.

Despite known benefits of statins in HIV, its **effects on bone health are less clear**. We provide evidence that **Rosuvastatin increases MGP, signaling worse vitamin K2** status. Research is needed on whether supplementation with vitamin K2 may be warranted in the setting of statin therapy to avoid unfavorable effects on bone.

Author Contact Information:
Jared C. Durieux, MS, MDS, MPH:
jared.Durieux@uhhospitals.org