Elevated Serum Iron in Psoriatic Patients

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► Background

6.9 million U.S. citizens experience psoriasis, which creates a significant burden of disease as a chronic inflammatory skin condition.[1] Previous research found increased serum iron correlated with markers of **inflammation, enhanced oxidative stress**, while inflammatory conditions have seen improvement via reduction of iron stores (ie. diabetes).[2,3] Limited research has further explored this potential association and future research requests have **called for larger population analyzations**.[4]

► Methods

We conducted **a population-based, cross-sectional** study focused on patients 20 years and older with psoriasis from the 2009-2014 National Health and Nutrition Examination Survey (NHANES).

- **19,352 participants** (1,545 excluded for non-response)
- Serum Iron levels borderline/elevated at **≥177 ug/dL** or normal at ≥50 ug/dL and < 176 ug/dL
- **Multivariable logistic regression models** adjusted for confounders (age, gender, race, income, smoking status, obesity, diabetes status, education level)

► Scan the QR code for references and supplemental materials/data.

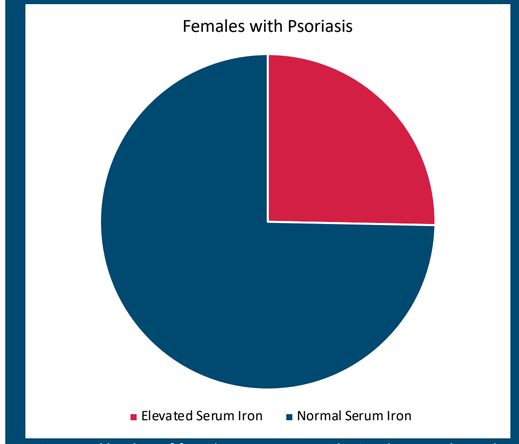

Figure 1. *Number of female survey respondents who experienced psoriasis +/- elevated serum iron levels (+ = 25.3%). Reference to non-psoriatic population (20.9%)*

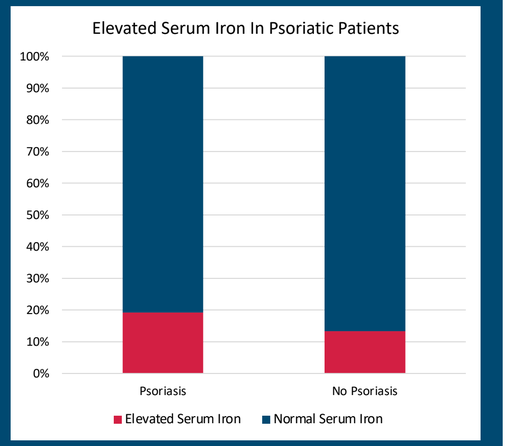

Figure 2. *Number of psoriatic or non-psoriatic survey respondents who experience elevated serum iron levels. Psoriasis group (19.2%) vs Non-Psoriatic group (15.4%)*

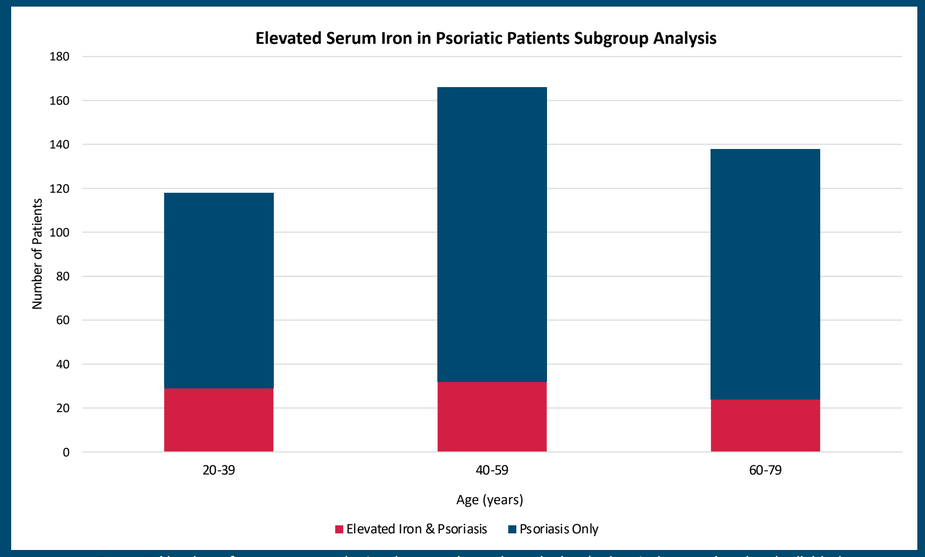

Figure 3. *Number of survey respondents who experienced psoriasis +/- elevated serum iron levels divided by age group analysis; ages 20-39 (24.5%), 40-59 (19.3%), 60-79 (17.4%)*

► Results

19.2% of psoriasis patients had elevated serum iron compared to 15.4% without psoriasis (P = 0.016). After adjusting for confounders:

- **Female** patients with psoriasis showed a significant and increased incidence of elevated serum iron (adjusted odds ratio [AOR] 0.59; 95% CI 0.37- 0.94; **P = 0.026**)
- Patients with psoriasis between the **ages 20-39** also showed a significant and increased incidence of psoriasis (adjusted odds ratio [AOR] 0.53; 95% CI 0.31- 0.89; P = **0.019**).

► Conclusions

Based on our statistical calculations, there is an **overall significant association between psoriasis and patients with elevated serum iron**. Specifically, psoriatic females and patients aged 20-39 are at increased risk of elevated serum iron.

Limitations of our study include patient-reported diagnosis and lack of iron supplementation control, and thus, potential for bias.

► Future Direction

Although our study has provided an association between psoriasis and elevated serum iron levels, we recommend further research:

- **Larger, *in vivo* studies, and chart reviews** providing further evidence to elicit research on treatment modalities of elevated serum iron and their effects
- **Clinical implementation** of elevated serum iron level checks with psoriasis patients and their advantages and disadvantages