Intercurrent infection as a risk factor for disease flares in patients with systemic lupus erythematosus

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Background

Objectives: To determine whether intercurrent infections are a risk factor for disease flares in systemic lupus erythematosus.

Methods

- Prospective longitudinal cohort study in 203 patients with SLE.
- Demographic and clinical data were collected at baseline, and at the start of an intercurrent infection that either was or was not followed by a flare within three months.
- **Definitions:**
  - Major infections: hospital admission or intravenous antibiotic therapy was required.
  - Minor infections: hospital admission not warranted.
  - SLE flares: increase in disease activity requiring intensification of immunosuppressive therapy.[1]
    - Major vs minor.
- **Statistics**:
  - Poisson regression to calculate incidence rates of infections, SLE flares, and infections followed by a flare within three months;
  - Proportional hazard models with recurrent events and time-varying covariates to estimate the hazard ratio of flares within three months after an intercurrent infection.

Results

- N = 203 (♀ 184 (91%), Caucasian (68%))
- Median age: 40.0 years (IQR 32.0 – 47.0)
- Median follow-up: 6 years (IQR 3-7)

Incidence rates

- **Infections:**
  - Major infections: 56 major infections in 1060 patient years.
    - 5.3 per 100 patient years (95% CI: 4.1 – 6.9).
  - Minor infections: 670 minor infections in 1048 patient years.
    - 63.9 per 100 patient years (95% CI: 59.3 – 69.0).
- **Flares:**
  - Total: 198 flares in 1060 patient years.
    - 18.7 per 100 patient years (95% CI: 16.3 – 21.5).
  - Major flares: 3.6 per 100 patient years (95% CI: 2.6 – 4.9).
  - Minor flares: 15.1 per 100 patient years (95% CI: 12.9 – 17.6).

Results

Longitudinal data analysis

- HR of SLE flares within three months after an intercurrent infection (major and minor): 1.9 (95% CI: 1.3 – 2.9).
- HR of major flares within three months after a major infection: 7.4 (95% CI: 2.2 – 24.6).
- No statistically significant association between major infections and minor flares.

Conclusion

1. **Intercurrent infection is a risk factor for SLE flares.**[2,3]
2. **Sevenfold increased risk** of a major flare within three months after a major infection.
3. These findings underline **the importance of prevention and treatment of infections** in SLE patients.

References

1. Bootsma H, et al. Lancet. 1995;345(8965):1595-9.
2. Fernandez D, et al. Curr. Rheumatol. Rep. 2016;18(3):14.
3. Tsai PH, et al. Lupus. 2020;29(2):191-8.

Figure 1 *Estimated cumulative incidence of SLE flares (major and minor) following an intercurrent infection within three months*