Body Temperature in Patients with Primary Immunodeficiency

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METHODS

- Study investigators partnered with “patient investigators” to design a prospective cohort study to determine whether body temperature differed between persons living with and without PI.
- Three hundred fifty adults with PI were recruited from IDF and one adult household member without PI was also recruited.
- McKesson digital oral thermometers (Model 01-413GM) recorded temperatures in all participants three times a day for five consecutive days.
- Descriptive statistics were calculated.
- Median body temperatures were compared between the two cohorts at each time point using Mann-Whitney test.
- Prism 6.0 was used to perform all analyses.

RESULTS

- Data from 254 households were used for analysis (72.6% participation).
  - The PI population was largely female (85.8%) with a median age of 49 years and largely Caucasian population (97.6%).
  - The non-PI population was largely male (66.9%) with a median age of 53 years and largely Caucasian population (92.9%).
- PI diagnoses included CVID (74.9%), hypogammaglobulinemia (12.6%), IgG subclass deficiency (4.7%), selective IgA deficiency (3.1%), specific antibody deficiency (3.1%), agammaglobulinemia (0.4%), chronic granulomatous disease (0.4%), combined immunodeficiency (0.4%), and complement deficiency (0.4%).
- 123 individuals with PI (48.4%) reported a lower than normal non-sick body temperature, while 108 individuals with PI (42.5%) reported a “normal (between 97°F - 99°F)” non-sick body temperature.
- 172 individuals with PI (67.7%) reported absence of fever with infection, while 50 (19.7%) reported a normal fever response with infection.
- The median body temperature was significantly higher for PI patients in the morning, but not evening or bedtime, reading in 4 out of 5 days.
  - Monday: PI = 97.5°F vs. non-PI = 97.2°F, p = 0.0291
  - Tuesday: PI = 97.4°F vs. non-PI = 97.2°F, p = 0.0020
  - Wednesday: PI = 97.5°F vs. non-PI = 97.2°F, p = 0.0009
  - Thursday: PI = 97.4°F vs. non-PI = 97.2°F, p = 0.0575
  - Friday: PI = 97.4°F vs. non-PI = 97.2°F, p = 0.0008

CONCLUSIONS

- Despite the limitations of this non-clinical study, individuals with PI are knowledgeable about their conditions and can offer unique insights and direction to researchers.
- This study demonstrates that collaboration with patient advocacy groups may facilitate patient-centered and patient-driven research with high participation among the target population.