Clinical characteristics of invasive disease caused by a rare Group A Streptococcus subtype, emm26.3
Alaska, 2016–2017

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Background

Molecular types of Group A Streptococcus: Group A Streptococcus (GAS) bacteria are classified by the sequence of the emm gene for the M protein on the cell surface. Clinical manifestations of GAS invasive disease can vary by emm type.

Surveillance in Alaska: The Alaska surveillance system types invasive GAS isolates and tests for antimicrobial susceptibility. In February 2016, emm26.3 was detected in Alaska.

What do we already know about emm26.3?
• First identified in Kenya in 2000.
• Occasionally causes invasive disease in the Middle East; detected in New Zealand in 2015.

Objective: to compare the clinical characteristics of emm26.3 invasive disease cases to cases caused by other emm types.

Methods

Study design:
Case-case comparison of emm26.3 invasive disease cases and those caused by non-emm26.3 types.

Case definition:
Isolation of GAS from a normally sterile body site in an Alaska resident from February 2016 to May 2017. Non-sterile site GAS isolates were included if the case had a diagnosis of necrotizing fasciitis or streptococcal toxic shock syndrome (STSS).

Data collection:
Medical records were assessed for all cases of invasive GAS that were admitted to the same healthcare facility within three months of each emm26.3 case. We collected demographic, clinical, and laboratory data by using a standard form. Isolates were emm-typed and tested for erythromycin, clindamycin, levofloxacin, tetracycline, and penicillin susceptibility.

Statistical procedures:
We calculated P-values using logistic and linear regression

Results

Figure 2: Clinical characteristics of emm26.3 compared to non-emm26.3 cases of invasive GAS

Conclusions

Emm26.3 group A Streptococcus infection was associated with severe invasive disease.

Limitations:
We cannot discern the reason for higher proportions of severe disease. Possible reasons include virulence characteristics of the bacterium, low immunity in the population, or underlying medical conditions of the affected community.

Next steps:
1) Study emm26.3 virulence in in vivo models
2) Continue monitoring for emm26.3 cases throughout Alaska
3) Promote strategies to prevent invasive GAS in vulnerable populations

Acknowledgments:
We would like to thank the laboratories who participate in the Alaska Arctic Investigations Program surveillance program for invasive bacterial diseases.

See Poster 653 for information about the outbreak of this strain!