#P1802

Effectiveness of clindamycin and epidemiology of invasive β-haemolytic streptococcal infections in a region of eastern Canada, 1996-2016

A. Couture-Cossette[1], A.Carignan[1], A.Mercier[1], C.Desruisseaux[1], L.Valiquette[1], J.Pépin[1].

[1]Department of Microbiology and Infectious Diseases, Faculty of Medicine and Health Sciences, Université de Sherbrooke, Sherbrooke, Québec, Canada.

BACKGROUND

- Shifting trends in the epidemiology of β-haemolytic streptococcal infections, a disease with an important burden, are often described but not well understood.
- In recent years, there was a perceived increase in the incidence of invasive non-group A β-haemolytic streptococcal infections in our region.
- There is a paucity of evidence supporting the clinical efficacy of clindamycin and IVIG treatment for invasive streptococcal infections.

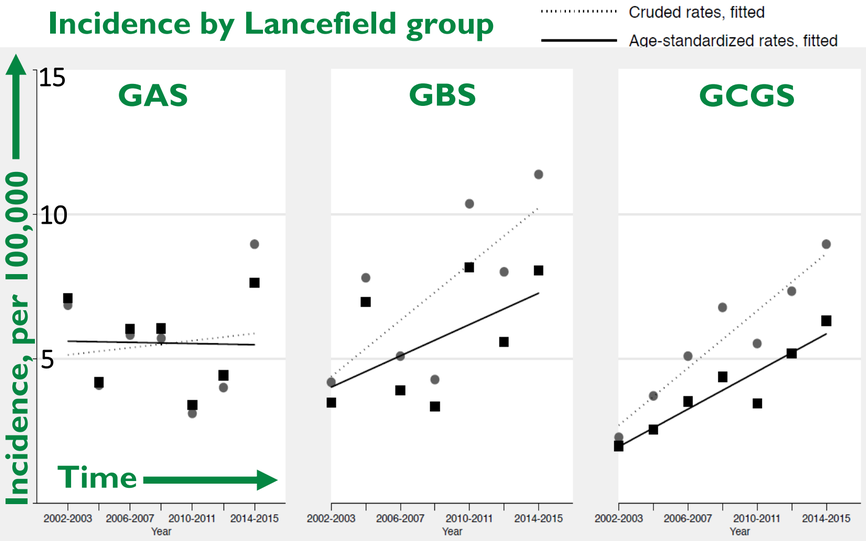
METHODS

- All cases of invasive group A (GAS), B (GBS), C or G (GCGS) streptococcal infections managed in a Canadian tertiary care university hospital from 1996-2016 were identified.
- Detailed case information was extracted from individual electronic health records.
- Population incidence by Lancefield group was measured for diabetics and non-diabetics.
- For GAS, multivariate analysis was performed to identify correlates of infection-related mortality. Adjusted odds ratios (AOR) and their 95% confidence intervals (CI) were calculated by logistic regression.

RESULTS – all Lancefield groups

- Incidence of GBS and GCGS infections were respectively 8.4 and 6.5 times higher in diabetics and increased over time
- IVIG had no measurable effect on outcomes in our study.

Incidence by Lancefield group



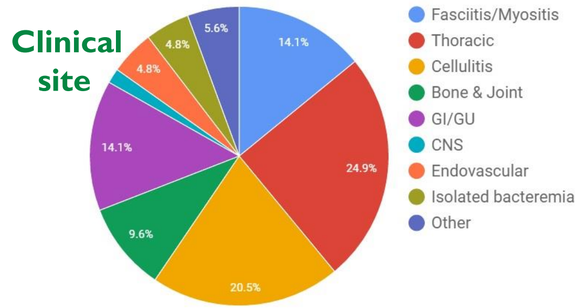
Clinical characteristics by Lancefield group

Characteristics	GAS (n=249)	GBS (n=304)	GCS (n=48)	GGS (n=140)
Age, median (IQR)*	43(24-65)	60 (38-75)	69 (60-80)	71 (62-83)
Comorbidity (Charlson)*	0 (0-2)	2 (0-5)	3 (1-6)	3 (1-5)
ICU admission*	123 (49%)	100 (33%)	12 (25%)	32 (23%)
Infection-related mortality	20 (8%)	24 (8%)	3 (6%)	14 (10%)

*p value = <0.001

RESULTS – Group A streptococci

Risk factor	Mortality AOR (95%CI)
Year of diagnosis	
1996-2000	1.0
2001-2005	0.02 (0.002-0.35)
2006-2010	0.26 (0.04-1.59)
2011-2016	0.01 (0.001-0.15)
Age (per additional year)	1.11 (1.06-1.16)
Anatomical site of infection	
All others	1.00
Fasciitis/myositis	2.08 (0.15-29.09)
Pneumonia/empyema	4.41 (0.99-16.70)
TSS present	
No	1.00
Yes	5.75 (1.12-29.55)
ICU admission	
No	1.00
Yes	28.51 (3.21-253.1)
Clindamycin treatment	
No	1.00
Within 24h	0.04 (0.004-0.35)
24-48h after admission	0.15 (0.02-1.37)
>48h after admission	0.21 (0.02-2.86)



Thoracic infections

	Thoracic	Myositis/fasciitis
Death/Total (%)	9/62 (14.5%)	2/35 (5.7%)
Clindamycin treatment initiated within 24h	**22%**	**86%**

AOR (95%CI) 0.06 (0.003-1.41)

CONCLUSION

- **Rapid clindamycin administration reduces mortality in invasive GAS** infections, whereas IVIG administration doesn't.
- Better management of invasive GAS infections possibly explains the lower mortality in recent years.
- **Clindamycin remains underused, particularly in thoracic infections** for which GAS might not be the first diagnostic consideration.
- Incidence of **non-GAS β-haemolytic streptococcal infections increased** over time, party because of aging and increasing comorbidities such as diabetes.

For additional information: antoine.couture-cossette@usherbrooke.ca

UNIVERSITÉ DE SHERBROOKE
Faculté de médecine et des sciences de la santé