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HARVARD MEDICAL SCHOOL
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Impact of Selective Immunoglobulin Deficiency on Chronic Rhinosinusitis

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Introduction:

The incidence of chronic rhinosinusitis (CRS) and its exacerbation has been associated with primary immunodeficiency. This study investigates the influence of selective immunoglobulin deficiency (IgG and/or IgA) on the severity of chronic rhinosinusitis.

Methods:

This retrospective study examines adult patients at the Beth Israel Deaconess Medical Center who were tested for selective immunoglobulin deficiency, categorizing them into group A (selective IgA and/or IgG deficiency) and group B (normal IgA/IgG). Patients with other forms of immunodeficiency were excluded.

The study compares rates of CRS, acute rhinosinusitis (ARS), ARS requiring antibiotics (AB), and surgical interventions between the two groups.

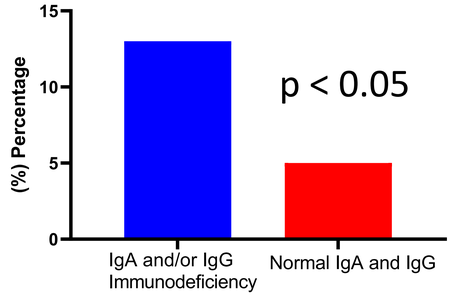
Results:

A total of 353 patients with IgG and/or IgA deficiency and 11,431 patients with normal IgA and IgG were included in the study.

There was no difference in age (mean: group A 55.2, group B 56.0) or gender (females: group A 66%, group B 65%) between the two groups.

Results:

Fig. 1: Rate of Chronic rhinosinusitis



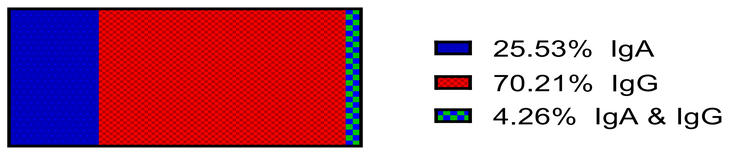


Fig. 2: Group A stratified by type of Ig deficiency

	IgA and/or IgG Immunodeficiency	Normal IgA and IgG	p-value
Acute Rhinosinusitis Episodes With or Without Antibiotics			
Pt with History of ARS	38%	25%	0.05
Mean ARS Episodes	0.87	0.53	0.16
Mean ARS Episodes/Yr	0.46	0.29	0.1
Mean ARS Episodes/Yr for Pt with ARS History	1.20	1.16	0.71
Acute Rhinosinusitis Episodes Treated with AB			
Pt with History of ARS	32%	21%	0.09
Mean ARS Episodes	0.74	0.44	0.20
Mean ARS Episodes/Yr	0.38	0.24	0.14
Mean ARS Episodes/Yr for Pt with ARS History	1.18	1.14	0.70
Endoscopic Sinus Surgery			
Pt with History of FESS	30%	23%	0.30
Mean FESS per Pt	0.36	0.30	0.53

Discussion:

- Group A has an increased prevalence of CRS compared to group B.
- Group A has a statistically significant higher prevalence of a history of ARS.
- Group A has a higher mean number of lifetime ARS episodes per patient and mean number of ARS episodes per year per patient, with both findings approaching statistical significance.
- Among patients with a history of ARS, the mean number of ARS episodes per year per patient was similar in both groups, suggesting that although selective IgA and/or IgG may predispose patients to ARS, it may not explain the mechanism behind repeat ARS episodes.
- No significant difference in history of FESS or mean number of lifetime FESS in both groups.

Conclusion:

Selective IgA and/or IgG deficiency predisposes patients to having CRS and ARS episodes. However, having selective IgA and/or IgG deficiency does not predict frequency of ARS episodes in patients with a history of ARS, nor does it predict need for FESS.