Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

427 Decrease in Antibiotic Use and Radiographic Sinus Severity after Functional Endoscopic Sinus Surgery in Patients with Chronic Rhinosinusitis and Antibody Immunodeficiencies

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RATIONALE: Antibody immunodeficiencies are common in patients with chronic rhinosinusitis (CRS) and are associated with recurrent sino-pulmonary infections. The role of functional endoscopic sinus surgery (FESS) has not been established in the management of these infections and clinical guidelines suggest caution with surgery. This study evaluates number of antibiotic courses for sino-pulmonary infections and radiographic sinus disease severity after FESS in patients with CRS and antibody immunodeficiencies.

METHODS: Patients with CRS and antibody immunodeficiencies undergoing FESS at Northwestern Medicine between 2007-2017 were identified using an automated review of electronic medical records. A manual chart review of 35 randomly selected patients was performed. The number of antibiotic courses prescribed annually for sino-pulmonary infections was determined, 1 year before and up to 5 years after FESS. Lund-Mackay scores were calculated in patients who had sinus CT scans available before and after FESS.

RESULTS: The 35 patients identified were 51.4% male, 82.9% white, and had an average age of 52.9±8 years. There was a reduction in the mean±SD number of antibiotics prescribed per year for sino-pulmonary infections after FESS (2.8±2.2 pre vs. 1.5±1.2 post, $P=0.001$) in patients with CRS and antibody immunodeficiencies. There was a reduction in Lund-Mackay scores with FESS (N=21, 10.2±5.3 pre vs. 7.5±3.2, $P=0.009$).

CONCLUSIONS: FESS is associated with a reduction in antibiotic prescriptions for sino-pulmonary infections and improvement in radiographic sinus disease severity in patients with CRS and antibody immunodeficiencies. This suggests that FESS can be an effective strategy for reducing sino-pulmonary infections and disease burden in these patients.

428 Risk Factors Associated With COVID-19 Related Anosmia And Ageusia

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RATIONALE: Anosmia and ageusia are associated with COVID-19 in addition to other symptoms. In this study we examined factors associated with anosmia and ageusia and their recovery in an ethnically diverse cohort in Bronx, NY, and assessed the overall rate of anosmia and ageusia and their associations with other COVID-19 related symptoms.

METHODS: Individuals tested for SARS-CoV-2 at Montefiore Medical Center were included in the study. Those who consented from a randomly selected subsample and answered the questionnaire were included in the analysis.

RESULTS: Overall, 33% and 50% of COVID-19 patients (N=486) reported anosmia and ageusia, respectively, and 58% reported both. Those with reported anosmia and ageusia more often had systemic symptoms (fever, body aches, fatigue), respiratory symptoms (cough, sore throat), and diarrhea, compared to those without anosmia or ageusia (p-value<0.01). Patient characteristics associated with lower probability of anosmia and ageusia included older age (AOR(anosmia):0.980, 95% CI:0.967-0.993, p-value<0.01, AOR(ageusia):0.98, 95%CI:0.970-0.990, p-value<0.01) and higher peripheral eosinophil count (AOR(anosmia):0.021, 95% CI:0.001-0.460, p-value=0.01, AOR(ageusia):0.10, 95%CI:0.010-0.970, p-value<0.05). Male gender was independently associated with a lower probability of ageusia (AOR:0.56, 95%CI:0.380-0.820, p-value<0.01) and a better recovery from ageusia (AHR:1.44, 95%CI:1.05-1.98, p-value<0.05). Latinos too had better ageusia recovery than the whites (AHR:1.82, 95%CI:1.05-3.18, p-value<0.05).

CONCLUSIONS: COVID-19 patients with anosmia and ageusia are more likely to report greater presence of systemic, respiratory, and gastrointestinal symptoms. Older patients and those with higher blood eosinophil counts are less likely to report anosmia and ageusia. Men have a lower probability of reporting ageusia and men and Latinos recover faster from it.

429 Alcohol Hypersensitivity In CRSwNP And Polyphenols

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RATIONALE: Alcohol sensitivity is reported in up to 74-86.5% of patients with chronic rhinosinusitis with nasal polyposis (CRSwNP) and especially in those with aspirin-exacerbated respiratory disease (AERD). These patients typically report sensitivity to beverages fermented in wood casks, with fruit skins, or with hops, but not to other alcohol-containing drinks. We speculated that alcohol sensitivity in AERD/CRSwNP could result from activation of basophils by polyphenols derived from the aging of fermented beverages.

METHODS: We collected whole blood samples from controls and alcohol sensitive subjects with AERD/CRSwNP. We exposed these cells to red wine extract, various bioactive polyphenols known to be present in red wine, and ethanol, as well as positive activation controls. We evaluated basophil activation via flow cytometry using CD63. Basophils were defined in these whole blood samples as cells within a side scatter^{low} CCR3^{high} flow cytometry gate.

RESULTS: We demonstrated robust basophil activation in alcohol sensitive subjects (increased CD63 expression from 0.72%±0.21 to 25.97%±5.35;n=4; p<0.018) in response to components within red wine extract. No significant changes were observed in control subjects. No activation was observed with ethanol. However, we could not ascribe activation to known immune active polyphenols including either (+)-catechin or resveratrol.

CONCLUSIONS: Up to 74-86.5% of patients with AERD/CRSwNP report sensitivity to alcoholic beverages, primarily those associated with aging in wooden casks. We demonstrated that components in red wine – but not alcohol itself – can directly activate basophils. We were not able to define the specific bioactive substance(s) in these aged beverages that produce these hypersensitivity reactions.