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A study of environmental risk factors in chronic rhinosinusitis
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Objective: Chronic rhinosinusitis (CRS) is a complex disease that incorporates many different conditions. The aim is to determine the role of environmental risk factors in chronic rhinosinusitis.

Methods: This was a case-control study where forty cases of CRS in the age group of 18-62 years were recruited from the ENT-OPD of AIIMS and GTB Hospital, Delhi, a tertiary care hospital, along with 40 age-appropriate healthy controls. Information and written consent was obtained from all the subjects. Detailed history and examination along with routine blood and radiological investigations were done. Subjective assessment of disease was done using visual analog scales of SNOT 22 questions, environmental questionnaire, and sputum test. Objective assessment was done using endoscopic grading according to Lund and Kennedy scoring. CT scores were also obtained using Lund and MacKay staging system. Posterior air sampling was done by the settle plate method and Anderson six-stage cascade impactor was used for active air sampling. Blood agar and Sabouraud dextrose agar plates were incubated on the six stages of the cascade impactor, which were later incubated at 35°C and 25°C respectively, for 18-24 hours. Bacterial concentrations were calculated and MicroScan Walkaway system was used to identify bacterial and fungal growth. The correlation between total bioaerosol concentration and the symptom score was done by Spearman’s correlation coefficient, a comparison of mean total bioaerosol concentration between the case and control groups was done by Mann–Whitney U-test.

Results: The mean total bioaerosol concentration from active air sampling in the case group was 458 ± 32 CFU/m3 and 437 ± 1 CFU/m3 in control, which was not significant. It was found to be negatively correlated, but not significant with various parameters in case groups like SNOT 22 score, environmental exposure score, sputum test, smoking, and endoscopic score. A positive but insignificant correlation was found between total bioaerosol concentration and absolute eosinophilic count and CT score. The mean CFU/0.1 m3 was found after active air sampling between case and control group was 34.05 ± 5.8 and CFU/10 m3 which was not significant. Fungal growth was mostly Aspergillus fumigatus and A. Niger followed by Candida sp system app. Conclusion: The fungal burden was high in all the households of the case as well as control groups, although, a significant correlation could not be established. The environmental conditions found in this study were found to be conducive to future risk of exacerbation of previous fungal infections for which indoor air quality needs to be monitored.

P340 Detection of emerging genotypes in Trichophyton mentagrophytes complex: a proposal for handling biodiversity in dermatophytes
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Poster session 3, September 23, 2022, 12:00 PM - 1:30 PM

Objective: The resistant and hypervirulent dermatophytes, which were found in India, have been described as a taxonomic novelty. It is urgent to detect the dermatophytes and their closely related clinical species fast and efficiently. Therefore, we evaluate the efficacy of diagnostic methods for the rapid detection of closely related clinical species.

Methods: Members of the Trichophyton mentagrophytes species complex were analysed using Real-time PCR, Dermatfine, LAMP, and MALDI-TOF in comparison with ITS sequencing.

Results: Dermatophytes correctly recognized genotypes IV, VI, and IX as belonging to Trichophyton mentagrophytes, and all strains of T. interdigitale. However, genotype III and IV of T. mentagrophytes were recognized as T. interdigitale. The real-time PCR cannot distinguish these genotypes. In LAMP assay, T. interdigitale, T. mentagrophytes IV, III, and IV, and T. interdigitale was positive. Trichophyton mentagrophytes genotype VII, and one strain of T. mentagrophytes genotype IX. In MALDI-TOF true, the most of T. interdigitale strains can be clustered in one clade. The rest of the genotypes are irregular.

Conclusion: Dermatophytes, real-time PCR, and LAMP cannot adequately distinguish among T. interdigitale, T. interdigitale, and T. mentagrophytes. Only T. interdigitale from the Indian outbreak was approximately distinguishable with MALDI-TOF other than sequencing. We recommend to distinguish species only when they show an appreciable degree of adaptation and thus are clinically significant. Distinction of remaining donor diversity is an epidemiological query and can be solved by haplotype sequencing.

P341 Evaluation of anti-Candida activity of Cinnamaldehyde using mice model
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Objective: Vaginal candidiasis is a frequent infection affecting the female population. Candida albicans infections are reported in escalating frequency and can be associated with stress, health hazards or even death. People with varous (Covid-19, malignancies, AIDS, and organ transplants) are particularly vulnerable to invasive vaginal candidiasis. Due to the high frequency of infections associated with recurrence, vaginal candidiasis poses a significant medical problem worldwide. Treatment of vaginal candidiasis is limited due to drug resistance, side effects, and toxicity. CIN is a natural compound and its antifungal activity is widely reported. The introduction of cinnamaldehyde (CIN) as the anti-Candidal agent will revolutionize the treatment of vaginal candidiasis.

In this study, we investigated the anti-Candida activity of CIN against vaginal candidiasis in Swiss albino mice (C3H/Hc strain).

Methods: Vaginal candidiasis in mice (Swiss albino) was induced under conditions of pseudo-estrus. Pretreatment vaginal candidiasis infection was found in pseudopregnant mice after vaginal challenge with C. albicans. The mice were treated orally after confirmation of infection in mice. The efficacy of CIN treatment was investigated phenotypically by colony-forming units (CFU) counts in the vaginal swab, fungal load determination in the blood, the ovarian and vaginal tissues and periodic acid-Schiff (PAS) staining of histopathological sections of the vaginal tissues. The histological parameters of the experimental mice were also evaluated.

Results: The pseudohyphae and spores of C. albicans were present in the vaginal swab of experimentally infected mice. After treatment, no C. albicans colonies were found in the vaginal-swab of infected mice. The fungal burden was significantly higher in the vaginas and the ovaries of infected mice. However, a dose of 242.5 mg/kg BW of CIN reduced the number of CFU in the vagina and ovaries in treated mice. The histopathology revealed the absence of C. albicans in the vaginal tissue of the treated mice. Nonetheless, the vaginal sections of infected mice exhibited pathological changes. The histological parameters such as RBC counts, WBC count, and percentage of hemoglobin showed significant differences in the treatment groups compared to the infected group.

Conclusion: Cinnamaldehyde showed good in vivo antifungal potential against vaginal candidiasis. However, evaluation of its pharmacodynamic and pharmacokinetic parameters and complete elucidation of its mode of action are do needed.