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Oral Presentations

MEDICAL MANAGEMENT OF ADENOIDAL HYPERTROPHY: AN EVIDENCE-BASED APPROACH

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Introduction: Nasal obstruction secondary to adenoidal hypertrophy is a very common clinical presentation in the paediatric population, causing significant morbidity. Surgical intervention has been regarded as the gold standard of treatment and is required in severe cases, such as obstructive sleep apnoea syndrome or pulmonary hypertension. Some patients have severe nasal allergies. Rarely, patients with acute septic adenoiditis require emergency surgery.

In the South African public health system, theatre time is at a premium owing to the lack of surgical resources. Patients often have to wait 6 months or longer for surgery. Recent studies have demonstrated that there is a role for medical management in patients who have moderate to severe nasal obstruction secondary to adenoidal hypertrophy. Intranasal corticosteroid treatment is an alternative to surgical intervention.

Method: A review of 6 randomised controlled studies, involving 394 patients (aged between 0 and 12 years), conducted in 4 countries where intranasal corticosteroids were used as an alternative to surgical intervention, in which outcome measures such as improvement in nasal obstructive scores and reduction in adenoidal size are considered.

Results: 5 out of the 6 studies found the use of intranasal steroids effective for patients with nasal obstruction secondary to adenoidal hypertrophy, which is independent of allergic status. The 6th study showed no reduction in nasal obstructive symptoms, but a 5-fold decrease in adenoidal size.

Conclusion: The use of intranasal steroid treatment in patients with moderate to severe adenoidal hypertrophy may significantly improve nasal obstructive symptoms and adenoidal size. Medical treatment of this condition should be considered as a cost-effective alternative to surgery in the public and private sector.

Long-term studies are needed in order to study the optimal duration of intranasal steroid treatment required and the long-term side-effect profile of intranasal corticosteroid use in these patients.

A PROSPECTIVE, DESCRIPTIVE STUDY TO DETERMINE THE PREVALENCE OF IGE-MEDIATED FOOD ALLERGY IN SOUTH AFRICAN CHILDREN WITH ATOPIC DERMATITIS ATTENDING A TERTIARY MEDICAL CENTRE: REVIEW OF THE FIRST 80 PATIENTS

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Introduction: There is increasing evidence of an association between IgE-mediated food allergy and atopic dermatitis (AD). European and North American studies suggest high rates of food sensitisation (50 - 60%) and allergy (30 - 40%) in children with AD. Similar data are lacking in South Africa, where anecdotal evidence suggests that food allergy is uncommon in the Xhosa population.

Primary objective: To determine the prevalence of IgE-mediated food allergy to common allergenic foods in South African children (6 months - 10 years) with AD attending the Red Cross Hospital (RXH) dermatology clinic.

Method: In this prospective observational study, randomly selected children with AD were investigated for food allergies using a questionnaire, skin-prick testing (SPT) and food-specific IgE (using immuno-solid phase allergen chip-Phadia™). In all cases equivocal for food allergy, children underwent open oral food challenges.

Sensitisation was defined as positive SPT/specific IgE; *allergy* as sensitisation + convincing recent history of a reaction *or* positive food challenge.

The study was approved by the UCT ethics committee and fully informed consent was obtained from parents.

Results: To date, 80 children have completed the study, 31 of mixed race and 49 black. Overall *66% of patients showed sensitisation to at least one food*, most commonly egg (52% of patients), peanut (39%) and cow's milk (25%). 41% of patients had at least one food *allergy*, most commonly egg (26% of patients), and peanut (24%).

The breakdown patterns for coloured and black patients are set out in the table.

Conclusion: The prevalence of IgE-mediated food allergy in children with AD attending the RXH dermatology clinic – including black patients – is high, and comparable with that in westernised countries.

The drop-off between sensitisation and allergy is particularly high in black patients (71% sensitised v. 37% allergic), so targeted history taking, allergy testing and selected food challenges are vital to differentiate sensitisation from allergy.

ACUTE PAEDIATRIC ASTHMA EXACERBATIONS IN GABORONE, BOTSWANA

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Introduction: Asthma is the commonest chronic childhood illness in many countries, and affects 10 - 20% of children in South Africa. The burden of paediatric asthma in Botswana is unknown. We assessed this in the accident and emergency (A&E) room of Botswana's largest referral hospital.

Methods: Hospital records from April 2009 to June 2010 of children (<18 years) presenting to A&E at Princess Marina Hospital in Gaborone were retrospectively reviewed. The contribution of asthma to overall and respiratory diagnoses was analysed using summary statistics.

	Any sensitivities (%)	Any allergies (%)	Egg sensitised (%)	Egg allergic (%)	Peanut sensitised (%)	Peanut allergic (%)	Cow's milk sensitised (%)	Cow's milk allergic (%)
Coloured	58	48	42	29	45	35	32	3
Black	71	37	59	24	35	16	20	0
Total	66	41	52	26	39	24	25	1

Results: Of 5 688 patients seen in A&E, 1 463 (26%) had respiratory conditions. Of these, the most common diagnoses were pneumonia (58%), upper respiratory tract infections (URTIs) (17%), asthma (16%) and bronchiolitis (3%). The remaining 6% included croup, paraffin pneumonitis, tuberculosis and upper airway obstruction. Of 238 asthmatics, 53% were male and the median age was 7.1 years (range 3.8 - 9.7 years). Asthma visits peaked from January to June (median 22 visits/month; range 15 - 30) as opposed to July to December (median 7.5 visits/month; range 6 - 11; p=0.001 Wilcoxon rank-sum). Of respiratory patients seen in A&E, 893 (16%) were admitted. The main respiratory admission diagnoses were pneumonia (74%), asthma (10%), URTIs (5%) and bronchiolitis (4%). Asthmatics were less likely than pneumonia patients to be admitted (odds ratio (OR) 0.16; 95% confidence interval (CI) 0.12 - 0.23; p<0.001). There were no asthma deaths during the study period, but two pneumonia patients died in A&E.

Conclusion: Of paediatric emergency visits, 26% were respiratory in origin, with pneumonia, URTIs and asthma being the major contributors. Asthma accounted for 4% of total paediatric A&E visits, and 16% of respiratory diagnoses. Asthma exacerbations exhibited a seasonal peak in summer and autumn. Asthmatics were less likely than pneumonia patients to be admitted to the ward or to die in A&E.

DIFFICULTIES IN IMPLEMENTATION AND MAINTENANCE OF A SUBLINGUAL IMMUNOTHERAPY PROGRAMME

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Introduction: Sublingual immunotherapy (SLIT) is recommended for patients who are monosensitive to house dust mites or grass pollens. A previous study of a house-dust mite sublingual immunotherapy programme with 60 patients at the Allergy Diagnostic and Research Unit confirmed and showed significant improvement in symptoms and quality of life over a 2-year period (*Curr Allergy Clin Immunol* 2008;21(2):95).

Method: A new retrospective analysis of 91 patients from clinical records who were on file as 'having been recommended for SLIT' revealed that 35 patients were currently on treatment and 56 had either completed treatment or defaulted. Of those 35 on treatment, 60% had been on treatment for less than 2 years and 34% for 2 years or longer.

Results: 68 files were analysed in more detail: 63% males, 37% females; 40% adults (>20), 18% 13 - 20 years old, 37% <13 years old. 29% had asthma as a co-morbidity, and 62% were allergic to house-dust mite, 35% to grass pollen, 1% to cat and 1% to dog.

Conclusion: Since quality of life was not rigorously implemented in this cohort, follow-up of 56 files suggested that 34% of patients may have defaulted on the vaccines. Only 13% had completed their courses and 9% had stopped their treatment. A telephonic follow-up of all patients will be presented. Reasons for discontinuation or not ordering include difficulties with ordering the vaccines and lack of medical aid coverage.

PRIMARY HEALTH CARE MANAGEMENT OF CHILDHOOD ATOPIC ECZEMA

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Introduction: 20 - 30% of the world's population suffers from an allergic disease (WAO, 2008). This places a high burden on health services worldwide. The focus in this study was on childhood atopic eczema. Primary health care (PHC) is the entry point for patients into the public health system of South Africa. The question arises: How can the PHC clinician, as part of a multidisciplinary team, effectively manage children with atopic eczema?

Method: A qualitative, contextual, explorative and descriptive embedded single case study design was used. The single case was the public health service of the central district of Gauteng and embedded units were parents of children 0 -14 years with atopic eczema; dermatologists and paediatricians of the paediatric dermatology outpatient unit of a tertiary hospital; and primary health care clinicians of local authority or provincial clinics in this district. Data were collected through semi-structured and focus group interviews asking two questions: How is it for you to manage childhood atopic eczema? How do you see the role of primary health care clinicians regarding the management of childhood atopic eczema? Data were collected until saturation occurred. Data analysis was done using Tesch's eight steps for open coding.

Result: Three main themes and sub-categories were identified:

Management challenges: not enough and/or effective treatment on PHC level; lack of knowledge by PHC clinicians and parents; ineffective referral system and financial implication of management.

Physical challenges: Extreme discomfort and difficulty in coping for children and family; high patient numbers.

Emotional challenges: A range of emotions were experienced by all, with frustration the highest for all three categories.

Conclusion: Effective management of childhood atopic eczema on PHC level needs a change in treatment options and increased knowledge of PHC clinicians and parents. Input of stakeholders and expertise are needed for development of management guidelines and training programmes.

THE IMPACT OF HIV INFECTION IN PATIENTS ADMITTED WITH DIARRHOEA

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In an environment with a high prevalence of HIV infection, common intercurrent diseases such as diarrhoea could co-exist with unknown or unsuspected HIV infection.

Aim: To determine the impact of HIV infection in patients admitted with diarrhoea.

Method: Retrospective descriptive folder review of patients aged less than 5 years admitted with acute diarrhoea over the preceding 2 years. To be included, the admission diagnosis had to include any of the terms 'gastro-enteritis', 'diarrhoea', 'dehydration' or 'dysentery'.

The clinical features of patients with confirmed HIV infection by polymerase chain reaction (PCR) (or enzyme-linked immunosorbent assay (ELISA) if older than 18 months) were compared with those of HIV-uninfected patients and with those in whom HIV had not been considered.

Results: A total of 171 patients were included. HIV tests were performed on 98 patients and were positive in 42 (42.9% of those who had been tested). HIV infection was not considered as a co-diagnosis in 42.7% of patients with diarrhoea.

HIV-infected children showed differences in respect of preceding events and were more malnourished (82% had a WFA Z-score <-2 v. 45% of uninfected children). More HIV-infected children had additional co-morbid conditions.

More HIV-infected children died than uninfected or unsuspected (11.9% compared with 1.8% and 2.7%, respectively). HIV-infected survivors had a longer hospital stay compared with uninfected or unsuspected children (12±11 days v. 6±5 days or 3±2 days). More than 50% of infected children were in hospital for longer than 7 days, compared with 24% and 6.8% of uninfected and unsuspected patients, respectively.

Conclusion: Overlapping co-morbidities mean that HIV infection cannot be reliably predicted on clinical features alone.
With effective ART available, all patients with diarrhoea must be offered HIV diagnosis in order to provide earlier access to appropriate management.

Conflict of interest: None declared.

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ORAL RUSH DESENSITISATION TO COW'S MILK IN A SEVERELY COW'S MILK-ALLERGIC ADULT

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Introduction: A 19-year-old man with recurrent episodes of anaphylaxis to cow's milk exposure, with a first anaphylactic episode occurring in 1995 at the age of 7 and subsequent anaphylactic episodes occurring in 2003, 2004, 2005, 2006 and 2008, underwent oral rush desensitisation to cow's milk because his anaphylactic episodes were becoming more frequent.

Method: Admission to an intensive care facility was arranged. Oral administration of increasing doses of cow's milk given daily for 5 days was instituted. An initial dose of 1 ml of cow's milk diluted 1:1 000 (0.03 mg of protein), followed by a dose of 1 ml of cow's milk diluted 1:100, then doubling to a final dose of 200 ml of full-strength cow's milk, was administered. Serum for serial daily, then monthly, analysis of biochemical parameters following rush oral immunotherapy was obtained. Daily ingestion of cow's milk upon discharge was prescribed in order to maintain tolerance.

Result: Minimal and manageable acute and delayed side-effects were noted during the first 4 days of oral rush desensitisation. A moderately severe delayed reaction developed 7 hours after the last dose on day 5. The patient was kept in the intensive care unit for a 6th day and challenged uneventfully with 150 ml undiluted cow's milk before discharge. He was discharged on a daily maintenance dose of 150 ml cow's milk, to be increased over weekends in 10 ml increments in order to reach 250 ml per day. To date 250 ml is being ingested daily with no or minimal adverse reactions (mild wheeze). Specific IgE levels to the main cow's milk allergens showed a rapid decline with concomitant increase in IgG subclasses.

Conclusion: Oral rush desensitisation to cow's milk may be a useful method of desensitisation for severely cow's milk-allergic adults.

EVALUATION OF HYPERSENSITIVITY TO MAIZE POLLEN

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Introduction: Allergic rhinitis, asthma and chronic sinusitis as a result of contact with maize pollen are frequently reported to doctors in the Hartswater region. Hartswater is an agricultural town serving the northern section of the Vaalharts Irrigation Scheme in the Northern Cape province of South Africa.

Method: Forty-five subjects previously assessed and diagnosed with allergic rhinitis, asthma and chronic sinusitis by two Hartswater general practitioners were recruited into the study. Detailed questionnaires were completed. SPTs for six varieties of maize pollen, a positive and negative control, were performed on all subjects. Serum-specific IgE for maize pollen, a variety of grasses and moulds, olive tree, house dust mites and MUXF3 CCD (Bromelain) was evaluated.

Result: Forty-five subjects aged 11 - 80 years (22 males), were evaluated. Thirty-six patients (80%) were SPT-positive for at least one variety of maize pollen. Nineteen subjects were SPT-positive for all six maize varieties. Fifteen subjects were shown to have maize pollen-specific IgE >0.35 kU/l, (0.45 - 14 kU/l), and only 6 >3.0 kU/l. Serum-specific IgE for grass pollens matched that for maize pollen-specific IgE. Specific IgE for olive tree pollen >0.35 kU/l was found in 8 subjects. Serum-specific IgE for one or more moulds was detected in 10 patients. Five subjects were serum-specific IgE-positive for house-dust mites (0.36 - 8.67 kU/l). SPT resulted in anaphylaxis in 4 subjects, requiring reversal with intramuscular adrenaline.
Conclusion: Maize pollen is a major cause of hypersensitivity in the Hartswater region. Serum-specific IgE determination for maize pollen does not appear to be useful in determining patients allergic to maize pollen. This suggests that a maize protein component of maize pollen is not adequately represented in the serum-specific IgE assay.

WORK-RELATED RESPIRATORY DISEASE AND ASTHMA IN SPICE MILL WORKERS IS ASSOCIATED WITH INHALANT CHILI PEPPER AND GARLIC ALLERGEN EXPOSURES

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Background: Previous epidemiological studies have reported obstructive lung disease due to inhalation of spices. The aim of this study was to determine the prevalence of occupational allergic respiratory disease and associated risk factors in spice mill workers.

Methods: Exposure metrics were developed from 62 full-shift personal samples analysed for inhalable particulate mass, garlic allergen and endotoxin using ELISA inhibition and chromogenic LAL assays. A cross-sectional study of 150 workers used ECRHS questionnaires, Phadiatop, specific IgE to occupational allergens (garlic, chili pepper, wheat) (Phadia, ImmunoCAP), spirometry and FeNO as per ATS/ERS criteria (2005).

Results: The mean dust particulate (GM 2.06 mg/m^3, LOD -47.64) and garlic allergen (GM 0.24 µg/m^3, 0.02 - 43.29) levels were higher in blending, while endotoxin (GM 60 EU/m^3, 23 - 390) were elevated in milling areas. Dust particulate correlated more strongly with garlic allergen (r=0.70) than endotoxin (r=0.43). The mean age of the workers was 33 years, 71% were male, 46% were current smokers and 45% were atopic. Spice dust-related ocular-nasal symptoms (43%) were more common than asthma symptoms (17%). Sensitisation to garlic (19%) was higher than to wheat (9%) or chili pepper (6%) and highly correlated (r=0.89 - 0.96). The prevalence of COPD (FEV_1/FVC ratio post-bronchodilator <95th percentile) was 6%, while 4% had airflow reversibility (FEV_1>12%) and 8% airway inflammation (FeNO >50 ppb). Allergic rhinitis due to garlic (9%) was higher than to wheat (5%) or chili pepper (2%). Probable asthma due to garlic (4%) was higher than to wheat or chili pepper (3%). In multivariate models, work-related ocular-nasal (OR=2.3) and asthma (OR=4.2) symptoms due to spice dust were strongly associated with airborne garlic allergen (>0.235 v. <0.066 µg/m^3) whereas general work-related asthma symptoms (OR=5.2) were strongly associated with endotoxin levels (>59.06 v. <44.86 EU/m^3). Spice dust-related asthma symptoms were also associated with garlic sensitisation (OR=4.7). Probable asthma was more strongly associated with sensitisation to chili pepper (OR=23.9) than to wheat (OR=6.4) or garlic (OR=5), as was COPD in relation to chili pepper (OR=15.6) compared with wheat (OR=7.5) or garlic (OR= 4.9) sensitisation.

Conclusion: Workers exposed to inhalable spice dust particulate (mean >2 mg/m^3) containing allergens as low as 235 ng/m^3 have an increased risk of work-related lower respiratory symptoms, probable asthma and COPD. The strongest association is with chili pepper sensitisation.

Poster presentations

THE RELATIONSHIP BETWEEN MATERNAL ATOPY AND CHILDHOOD ASTHMA

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Introduction: The difficulty of diagnosing childhood asthma leads to widespread under-diagnosis. The presence of atopy is used as a clinical tool to assist in making the diagnosis. However, local studies have demonstrated that atopy occurs in fewer asthmatic children than was previously thought. The aim of this study was to determine whether a family history of allergy is predictive of atopic asthma in children, by comparing allergy, a history of asthma and allergic symptoms in mothers of atopic versus non-atopic asthmatic children.

Methods: A random sample of children and their mothers attending the Children's Chest and Allergy Clinic at Steve Biko Academic Hospital

were enrolled. SPT or radio-allergosorbent test results of the children were obtained from the child's hospital records.

Mothers completed a detailed questionnaire which included demographic details, a history of symptoms suggestive of 'atopy' and allergic diseases, and a history of asthma. SPTs were performed on the mothers.

Results: 100 children and their parents were enrolled. 64 mothers of atopic children were used as the study group and 36 mothers of non-atopic children as the control group. Of the 48 mothers with a positive SPT, 30 (64%) had atopic children (p=0.836). Of the 16 mothers with asthma, 14 (88%) had atopic children (p=0.045). Of the 70 mothers with a history of symptoms suggestive of an allergic disease, 45 (64%) had children with atopic asthma (p=1.0). Of the 77 mothers who were considered to be allergic, 50 (65%) had children with atopic asthma (p=0.806).

Conclusion. Both maternal skin-prick positivity and a history suggestive of allergic disease are poor predictors of atopic asthma in children. However, maternal asthma is a specific predictor, with a good positive predictive value and a high odds ratio. Further studies should be conducted to evaluate the epidemiology of allergic asthma.

HAEMATOLOGICAL ABNORMALITIES IN HIV-INFECTED PAEDIATRIC PATIENTS WITH DIARRHOEA

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Introduction: Platelet count abnormalities are frequently observed in patients with diarrhoea, but both thrombocytopenia and thrombocytosis have also been reported in association with HIV infection. Platelet count abnormalities in patients with diarrhoea may therefore result from several factors associated with either diarrhoea or co-morbid HIV infection. It is not known whether patients with diarrhoea and HIV co-infection have more significant platelet abnormalities than patients with diarrhoea alone.

Methods: The hospital records of patients under 5 years of age admitted with acute diarrhoea were retrospectively analysed. 150 patient files were included in the analysis. Hydration status, haematological parameters and anthropometric Z-scores were recorded. HIV status was determined as positive (HIV ELISA or HIV PCR positive), negative (HIV ELISA or HIV PCR negative), or unknown (HIV not tested).

Results: HIV-infected children had significantly lower haemoglobin (Hb) than HIV-uninfected patients (p=0.008) or HIV-unknown patients (p=0.000). There was no significant difference in Hb (p=0.574) or white cell counts (WCC) (p=0.455) between HIV-negative patients and HIV-unknown status. There were more children with thrombocytosis than thrombocytopenia in this study, and the proportions of children with diarrhoea and thrombocytosis were reduced in HIV-infected children compared with HIV-uninfected children (p=0.027).

HIV-infected children had a lower mean platelet count and a somewhat higher incidence of thrombocytopenia than uninfected children, but the lower mean platelet count was not associated with low white cell counts.

Conclusion: The majority of patients had thrombocytosis on admission irrespective of hydration status, but a lower percentage of HIV-infected children had elevated platelet counts. There was no significant difference in platelet counts between dehydrated and non-dehydrated patients. HIV-infected children were significantly more malnourished and malnutrition was associated with lower platelet counts.

Haematological testing is important in the setting of diarrhoea in young children, but not all measures are of equal importance.

NO CORRELATION BETWEEN HOUSE DUST MITE-STIMULATED TH2 CYTOKINE PROFILE AND SEVERITY OF SYMPTOMS IN ADULTS WITH PERSISTENT ALLERGIC RHINITIS

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Introduction: TH2 cytokine polarisation is associated with atopic diseases. There is little evidence, however, whether or not there is an association between the extent of the TH2 polarisation and symptom severity. We measured allergen-stimulated cytokine release from PBMC and symptom severity in subjects with allergic rhinitis.

Method: Adult subjects, 50 with persistent allergic rhinitis and a positive SPT (=4 mm wheal) to house-dust mite extract (HDM: Der p1), and 19 controls with no symptoms/history of allergic disease and negative HDM SPTs and RAST tests PBMC were cultured (2×10 to the 5/200 µl RPMI with 10% AB serum/well) with HDM extract (200 µg protein/ml). IL10 and IL12 were assayed in 18-hour cultures, and IL5, IL13, IL4, IFN? release and proliferation in 8-day cultures. The Total 5 Symptom Score (T5SS; average daily total of 5 individual scores for sneezing, runny nose, itchy ENT, eye symptoms and nasal congestion, each scored between 0 and 5, with 0 = absent and 5 = intolerable) was recorded in patient diary cards for 2 weeks before blood collection.

Results: The allergic rhinitis (AR) group had significantly increased HDM-stimulated IL5, IL13, IL4, IL5/IFN? and IL13/IFN? relative to the control (C) group. The medians (range) were: IL5: AR 195 pg/ml (7 - 3 785), C 26 pg/ml (7 - 351; p=0.003); IL13: AR 93 pg/ml (1 -1 095), C 27 pg/ml (1 - 445; p=0.024); IL4: AR 2.6 pg/ml (0.1 - 17.7), C 0.3 pg/ml (0.1 - 2.7; p<0.00001); IL5/IFN?: AR 1.02 (0.03 - 118),C 0.19 (0.01 - 1.09; p<0.0001); IL13/IFN?: AR 0.437 (0.0049 - 48), C 0.092 (0.02 - 0.9; p<0.001). Proliferation, IFN? and IL10 did not differ between the two groups. Proliferation: AR 25 575 d dpm (1 -153730), C 19 356 d dpm (612 - 92 008; p=0.6); IFN?: AR 152 pg/ml (1 - 3 090), C 208 pg/ml (11 - 3 400; p=0.4); IL10: AR 43 pg/ml (0.5 - 227), C 62 pg/ml (2 - 107; p=0.97). IL12 release was <5 pg/ml (sensitivity of the ELISA). Median T5SS was 14.3 (range 1.3 - 23.6) in the AR group. There was no correlation between the T5SS and any of the cytokine parameters measured.

Conclusion: There was no relationship between the cytokine levels and the severity of symptoms as measured by the average total symptom score for sneezing, runny nose, itchy ENT, eye symptoms and nasal congestion.

COMPLEMENT COMPONENT 5 DEFICIENCY (C5D) IN SOUTH AFRICA

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Introduction: Complement component 6 deficiency (C6Q0) is recognised as a problem in South Africa, but C5 deficiency (C5D) is not.

Method: We diagnosed C5D in a Cape mixed race man (M1) and a black African woman (N1). Both presented with recurrent meningococcal disease (MD), and the man died from his 5th attack. We identified the known C5 mutation R1476X in M1's mother and investigated his heterozygous sister and his two children.

Results: P2 was heterozygous for the known C5 mutation Q19X and a polymorphism A252T in exon 7; the latter was not believed to be pathological. No other defect could be identified. 750 blacks and 750 South African coloureds were tested for A252T. Allele frequencies were 3% and 0.66%, respectively. Adult C5 levels in carriers were significantly lower then

in non-carriers. We are now testing all recently diagnosed cases of MD for four C6Q0 defects and the three C5 defects, in order to identify homozygous or compound heterozygous susceptible individuals. Among 103 recent MD individuals we have not identified any with C5 Q19X or R1476X. However, we identified 3 homozygous A252T individuals. C5 levels have been investigated, and are 1 - 2% of those in controls.

Conclusion: Q19X and R1476 are rare defects, but A252T is a common cause of C5D and increased MD susceptibility in South Africa.

DETERMINANTS OF ELEVATED FRACTIONAL EXHALED NITRIC OXIDE (FeNO) LEVELS IN SPICE MILL WORKERS USING BASELINE AND SERIAL MEASUREMENTS

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Background: Measurement of fractional exhaled nitric oxide (FeNO) is suggested as an important non-invasive marker for airway inflammation in asthmatics. However, various occupational studies have demonstrated inconsistent results. This study evaluated the determinants of elevated FeNO (>50 ppb) for clinically relevant allergic respiratory disease endpoints in spice mill workers.

Methods: A cross-sectional epidemiological study of 150 workers used an interviewer-administered ECRHS questionnaire adapted for local conditions. IgE reactivity to common inhalants (Phadiatop) and occupational allergens (garlic, chili pepper and wheat) (Phadia, ImmunoCAP) was quantified. Spirometry and FeNO were determined using ATS/ERS criteria (2005). A hand-held portable nitric oxide sampling device (NIOX MINO®, Aerocrine AB) measured FeNO before and after the 8-hour work shift and 24 hours before the next shift.

Results: The mean age of workers was 33 years, 71% were male, 46% were current smokers and 45% were atopic. Sensitisation to garlic (19%) was higher than to wheat (9%) or chili pepper (6%). There were 8% of workers with elevated FeNO (>50 ppb) suggestive of asthma. The baseline pre-shift FeNO geometric mean (GM=14.9 ppb) was very similar to the mean change across shift (GM=15.4 ppb) and across the 24-hour period (GM=15.8 ppb). A lower proportion had FeNO increase more than 60% across shift (3%) than across the 24-hour period from baseline (5%). Atopy and smoking equally explained most of the variability (r^2=0.09, p<0.001) in baseline pre-shift FeNO. Sensitisation to chili pepper (r=0.32) was more strongly correlated with FeNO than garlic (r=0.20). Chili pepper persisted as a strong determinant (β=0.47) of FeNO similar to smoking (β=-0.47), but less so for atopy (β=0.41) and recent green vegetable intake (β =0.28) in the multivariate linear model. Probable asthma (FeNO>50 ppb) was also more strongly associated with chili pepper sensitisation (OR 23.9, CI 5.2 - 109.2) than wheat (OR 6.4, CI 1.6 - 250) or garlic (OR 5, CI 1.5 - 16.9). None of the variables was associated with an increase in FeNO (>60%) across the shift or over 24 hours.

Conclusion: Sensitisation to occupational allergens, chili pepper and to a lesser extent garlic is a major determinant of elevated levels of FeNO in spice mill workers. Current smoking and atopy modulate the FeNO response in opposite directions.

COELIAC DISEASE AND DIAGNOSTIC TESTING – A PILOT STUDY

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Introduction: Coeliac disease (CD) is an auto-immune inflammatory disease caused by ingestion of gluten in patients genetically predisposed to this condition that may lead to ongoing poor health in untreated patients. CD is one of the most common genetic disorders with a mean prevalence of 1 - 2.67%, which can rise to 2.4 - 44% in patients at a greater risk of developing CD.

Method: This retrospective study consisted of 206 patients who were tested for anti-tissue transglutaminase (tTG) IgA, a test for diagnosis of CD. This test is highly sensitive (90 - 98%) and specific (95 - 97%) for CD. Analysis was carried out on the ImmunoCAP 100 system (Phadia, Uppsala, Sweden). Patients deficient in IgA should be tested for the presence of tTG and deamidated gliadin IgG antibodies to prevent false-negative results.

Results: 7 of the 206 patients were found to be positive for CD (i.e. 3.4% of patients). Six of these patients were female and 1 male. The median age of these patients was 20, with a range of 15 - 69 years. Five of the 7 patients suffered from diabetes mellitus, one of whom was concurrently hypothyroid. Patients with CD have an increased rate of IgA deficiency (2.5%), which can account for a false-negative tTG IgA test. 149 of the 206 patients were tested for total IgA levels, of which 10% were increased and 5% were reduced. 38% of patients did not have total IgA performed; therefore 43% of patients were either IgA deficient or were not tested for total IgA. IgA deficiency could impact on the CD incidence.

Conclusion: The incidence of 3.4% could possibly be higher had we performed all the relevant tests. Failure to diagnose CD can lead to long-term consequences, and a follow-up study on CD is therefore urgently required in South Africa.