157 INFLAMMATORY MEDIATORS IN NASAL SECRETIONS DURING EARLY AND LATE REACTIONS. R. Naclerio, M.D., A. Togias, M.D., D. Proud, Ph.D., N.F. Adkinson, Jr., M.D., A. Kagey-Sobotka, Ph.D., M. Plaut, M.D., P.S. Norman, M.D. and L.M. Lichtenstein, M.D., Baltimore, Maryland

Eleven individuals who reported late symptoms after previous nasal antigen challenge were challenged again and mediators measured immediately thereafter and at hourly intervals. All subjects had an immediate increase in histamine (5.3±2.3 ng/ml), TAME esterase activity (19.0±3.7 CPM x 10^{-3}) and PgD_2 (1.6±.7 ng/ml) ($p < .01$ for each). Mediators decreased or disappeared in all subjects by 1-3 hours but 8 had a recurrence of symptoms at 3-11 hours which was correlated with the presence of histamine (4.1±1.5 ng/ml) and TAME esterase (13.2±3.8 CPM x 10^{-3}) ($p < .01$ for each). PgD_2, however, was never observed in the late reaction. No late change in mediators in nasal secretions occurred from (a) the 3 subjects without a late reaction, (b) late reaction subjects not challenged with antigen, or (c) in a non-allergic donor subjected to antigen challenge. Four subjects were rechallenged at 11 hours (during the late reaction) and had a third increase in all mediators including PgD_2 (1.6±.6 ng/ml). We conclude that both the early and late reactions are associated with mediator release but that there is no PgD_2 release in the late response, even though PgD_2 release can be stimulated by a repeat challenge. Since histamine is released by both mast cells and basophils while PgD_2 is generated only by the former, we suggest that the mediators appearing during the late response arise from basophils.

158 THE ROLE OF LEUKOTRIENE B_4 IN RAT CUTANEOUS LATE PHASE REACTIONS. Douglas Kopp, B.S., Barbara Esser, M.S., Edward Goetzl, M.D., and Robert Lemanske, M.D., Madison, WI and San Francisco, CA

The intradermal injection of anti-IgE antibody in rats triggers mast cell (MC) degranulation and elicits cutaneous inflammatory responses termed late phase reactions (LPR). Previous work has demonstrated that the complete histologic expression of rat LPR requires an early neutrophil infiltration. Since lipoxygenase products of arachidonic acid are generated during MC degranulation, and since leukotriene B_4 (LTB_4) has been shown to be a potent neutrophil chemotactic factor in humans, we investigated both in vitro and in vivo the potential role of LTB_4 as a chemotactic mediator of the early neutrophil infiltration in rat LPR. Rat neutrophils (RN) and human neutrophils (HN) were isolated from casein induced peritoneal exudates and peripheral blood, respectively, and their chemotactic response to human and synthetic LTB_4, the 12S isomer of LTB_4 and f-met-leu-phe (fMLP) was assessed using a 48 well microchemotaxis chamber. LPR-inducing activity was assessed by skin testing rats with LTB_4 and then counting the number of infiltrating neutrophils in biopsies 4 hrs later. RN did not migrate to serial log dilutions of synthetic LTB_4 (0.001 to 100 ng/ml), to human LTB_4 (0.001 to 100 ng/ml) or to the 12S isomer but did migrate to fMLP (10^{-9}M to 10^{-6}M). HN moved to human and synthetic LTB_4 and fMLP but not the 12S isomer. Human and synthetic LTB_4 skin tests did not evoke significant neutrophil infiltration in the rat. These data suggest that LTB_4 is not a major mediator of the early neutrophil infiltration in rat LPR.

159 ALLERGIC REACTIONS TO IMPORTED FIRE ANT STINGS. R.D. deShazo, M.D., C. Griffing, B.S., T.H. Quan M.D., W.A. Banks, Ph.D., and H.F. Dvorak, M.D. New Orleans, LA and Boston, MA.

The pugnacious fire ant (IFA) has replaced native ant species and become a serious cause of morbidity in the coastal U.S. We surveyed 113 people in suburban New Orleans and found that 58% had been stung in the past year. Nine of these individuals who had severe, large, painful local reactions were studied and results compared to 12 individuals who had the more common wheal and flare reaction followed by a sterile pustule. All 21 subjects were stung with live IFA and their reactions observed. The time course of the responses in patients with severe local reactions was biphasic and compatible with that of "late phase reactions" in that wheal and flare reactions evolved into painful, edematous lesions which peaked in size at 24 hours. Biopsy studies revealed the typical mixed cellular infiltrate and dense fibrin deposition previously noted in LPR to ragweed. Central necrosis at the site of envenomation was present in all individuals stung. Skin test titrations with commercial IFA whole body extracts revealed that not all patients with late phase reactions to stings experienced LPR with extracts. All patients, however, developed wheal and flare reactions with high concentrations of IFA-WBE. These data suggest that most indurated lesions resulting from IFA stings are LPR, and that not all IFA-WBE contain the allergens which induce these reactions. Thus, present IFA-WBE may have limited utility in the diagnosis of hypersensitivity reactions to IFA.

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160 CONJUNCTIVAL BASOPHIL HYPERSENSITIVITY; A MODEL OF VERNAL CONJUNCTIVITIS. M.R. Allansmith, R.S. Baird, P.Askenase.

The major abnormalities of vernal conjunctivitis and its look-alike, contact lens-associated giant papillary conjunctivitis are 1)occurance mainly in the upper lid and 2)an inflamatory infiltrate of basophils and eosinophils. We report a model in guinea pigs that demonstrates these abnormalities. Guinea pigs were immunized with keyhole limpet hemocyanin (KLH) injected intothe upper tarsus of one eye. Seven days later a secondary injection of KLH was made into the contralateral upper tarsus. Twenty-four hours later the upper lid receiving the secondary injection was red and swollen. A similar but lesser reaction was seen in the lid of the first eye. Eye tissues were removed 24 hours after the secondary injection, fixed in Helly's solution, sectioned at 5 um and stained with Giemsa. Basophils neutrophils, eosinophils, lymphocytes and macrophages were counted per ten 1000x fields. Non-injected and control PBS injected tissue had no basophils and less than 3% of the inflamatory cells were eosinophils. In conjunctivae responding to the secondary injection, a significant increase in basophils to 12% ($p=.004$) and eosinophils to 6% ($p=.004$) was seen. The primary injection site also had a significant increase in basophils ($p=.004$).

We conclude that this model of conjunctival basophil hypersensitivity resembles the clinical and histologic findings of two human conditions, vernal conjuctivitis and contact lens-associated giant papillary conjunctivitis.