the 4 developmental stages in Ae. Albopictus, indicating their potential roles in the development.

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**DL-033** The associated factors of dengue hemorrhagic fever among pediatric secondary dengue infections

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Objectives: The existence of dengue fever (DF) in Malaysia was first described following an outbreak in 1902 and the first case of dengue hemorrhagic fever (DHF) was reported in 1962. An annual incidence is about 400 to 7,000 cases. DHF is a common phenomenon in both adults and children. The aim of the study was to describe the associated factors of DHF in pediatric patients.

Methods: We reviewed all pediatric cases of laboratory confirmed secondary dengue infections from January 2005 to December 2006. The cases were selected based on serological test on the presence of dengue specific IgG and the age less than 16 year old. The data collection was made with regards to the patient's demography, clinical presentation and laboratory profiles. Fisher's exact, independent t-test and Mann-Whitney's test were used accordingly to study the association.

Results: Thirty-eight cases of pediatric secondary DF were identified during study period. Seven (18.4%) DHF I and two (5.3%) DHF II cases were identified according to WHO classification. The mean age was 12.4 ± 3.7 year-old, 55.3% male, 94.7% Malay, 7.9% imported cases, 50.0% have history of contact with dengue patients and the mean fever days before admission was 5.0 ± 1.6 days. DHF was associated with hepatomegaly (p = 0.040); ascites or pleural effusion (p = 0.012); longer hospital stay (p = 0.012); lower platelet during admission (p = 0.001) and higher alkaline phosphatase (0.015). There was no significant association between DHF with any presenting symptoms. No patient needs intensive care management. There was also no significant difference in term of outcome of infection between DF and DHF. No patient died in this series.

Conclusion: With this limited number of patients, pediatric DHF is significantly associated with hepatomegaly and elevated liver enzyme suggesting hepatitis may play important role in the pathogenesis of DHF.

**DL-034** Association between La Niña and dengue fever cases in Lahore from 2005 to 2008

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Objective: To determine the association of macroclimatic and microclimatic variations and dengue fever cases admitted in various hospitals of Lahore.

Methods: Record of confirmed dengue fever cases admitted in various hospitals in Lahore was collected. Microclimatic data was obtained from Regional Meteorological Centre, Lahore which included rainfall (mm/month), humidity (% at 8am and 5pm) and temperature (°C). Macroclimatic data including SOI, ONI and El Niño/La Niña updates were obtained from World Meteorological Organization and National Oceanic & Atmospheric Administration, USA.

Results: There were a total of 1757 indigenously confirmed cases of dengue fever in Lahore from 2005 to 2008. Linear regression models found statistically significant correlation between SOI and minimum temperature (r = -0.76, p < 0.05) as well as maximum temperature (r = -0.678, p < 0.05) but no correlation between SOI and rainfall in Lahore (r = -0.029, p > 0.05). However, there was positive correlation between daily rainfall and ONI (r = -0.946, p < 0.05). Highest number of dengue fever cases were recorded in 2008 which had a positive correlation with La Niña (90% higher than the mean number of cases) when compared with years having weak or no La Niña in which case there was a reduction in number of cases compared to mean value (p < 0.001).

A positive correlation was found between SOI and dengue (r = 0.781, p < 0.05). Dengue fever cases in Lahore were positively correlated with minimum temperature (r = -0.967, F = 61.84, p < 0.05), maximum temperature (r = 0.981, F = 52.1, p < 0.05) and rainfall (r = 0.543, p < 0.05). No significant correlation was found between relative humidity and dengue fever cases (p > 0.05).

Conclusion: The results show that global climate anomalies and regional weather indicators affected by it have an influence on number of patients admitted with dengue fever hospitals in Lahore. It is concluded that dengue fever epidemic can be predicted by oceanographic and meteorological data.

**DL-035** Does absence of itch-response to mosquito bite enhance susceptibility to the chikungunya virus infection?

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Background: Itch response to mosquito bite is an immune response against foreign proteins injected with mosquito bite. We observed a substantially large segment of chikungunya patients reporting for the lack of itch response to mosquito bite. Hence we studied the recent chikungunya epidemic (2006–2009) to explore the possible relation if any between the absence of itch response and an individual's susceptibility to chikungunya.

Method: We retrospectively studied the itch sensitivity patterns in 3000 subjects confirmed serologically for the chikungunya virus infection. The findings were compared with another set of 3000 subjects matched for age and sex, belonging to the same socioeconomic class and residing in the same areas presenting with other diseases with no current or past history of chikungunya virus infection as per the National Institute of Communicable diseases (NICD), India case definition. Data analysis was conducted using software GraphPad instat.

Results: The Odds of acquiring the chikungunya infection in patients without the history of itch response to mosquito bites is much higher compared (OR: 4.880, 95% CI: 4.373–5.444) to those with strong history of itch response demonstrated by itching and wheal reaction. Among the subjects diagnosed clinically for chikungunya it was also observed that the disease symptoms like joint pain (OR: 5.406, CI: 4.319–6.767), retro orbital pain (OR: 2.299, CI: 1.936–2.730), were more pronounced (P < 0.0001) in those with absence of itch response compared to those with positive history of itch response. Symptom of myalgia
(OR: 0.816, CI: 0.683–0.974) was seen less in those with itch sensitivity (P < 0.05).

**Conclusion:** The absence of itch sensitivity may increase the risk of acquiring the disease and add to the severity and that a strong local immune response may prevents or limit the manifestations of a systemic infection.

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**Free Paper Presentation 8: Parasitic and GI Infections**

**Saturday, July 17, 2010, 16:45–17:45**

Convention Hall 2C

**PL-008 Systemic leishmaniasis are inhibited by acetylsalicylic acid via nitric oxide pathway in Leishmania major infected susceptible Balb/c mice**

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**Objectives:** Leishmaniasis is a zoonotic disease caused by Leishmania parasites ranging from lesion to severe cutaneous/visceral leishmaniasis. Nitric oxide as a free radical released during an inflammatory response and involved in the microbicidal activity of macrophages. Acetyl salicylic acid inhibits inflammatory reactions but little is known about its effects on CL therapy. The purpose of this study was to evaluate antileishmanial effects of ASA via NO pathway in susceptible Balb/c mice infected with L. major.

**Methods:** Experimental leishmaniasis was initiated by injection of Leishmania promastigotes into mice. ASA was inoculated orally after lesion appearance using gavages once a day up to 13 weeks. The development of lesion was determined weekly and animals were humanely killed and target tissues were removed, weighted and their impression smears prepared. Griess microassay was applied for measurement of NO in plasma and target organs.

**Results:** Results showed ASA increased NO production in plasma of both naive and leishmania groups. A sharp decline was observed in proliferation of amastigotes inside MQ. Contrary, ASA reduced lesion size inhibited leishmanial visceralisation in spleen lymph node and decreased routine hepato/splenomegaly. However it had some negative side effect on survival rate and body weight. Results indicated some antileishmanial effects of ASA by alterations of NO as immunomodulatory factor in L. major infected Balb/c mice.

**Conclusion:** ASA presented its ability to elevate NO concentration in plasma during systemic leishmaniasis in mice and it decreased parasite visceralization in target organs as well as declining its proliferation inside macrophages with less effect on lesion size. It presented no significant effects on hepato/splenomegaly and decrease survival rate and body weight. It is indicated ASA may be applied for inhibition of systemic leishmaniasis via nitric oxide pathway on Balb c mice infected with L. major, however more studies are required to clarify this concept.

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**OL-036 Prevalence of canine scabies in Korean stray dogs**

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**Background:** Recently the number of stray dog is proportionate with the increase of the number of the companion dog. Sarcoptes scabiei var. canis, causing scabies, is one of the most important canine zoonotic arthropod in Korea and around the world. Thus, we have tried to know the prevalence of canine scabies in the stray dog in Korea.

**Methods:** A total of 565 stray dogs were collected from the rescue centers all over the country. They were grouped with euthanasia or natural death and examined for the sex and age estimated by dental formula. To identify the lesions, the whole body was grossly examined and tested pathologically.

**Results:** Thirty-two (5.66%) of 565 dogs were diagnosed to have canine scabies. Demodiosis and pediculosis also detected in seven cases, respectively. Dogs from urban areas had fewer scabies (0.62%) than that of rural areas (12.5%). Prevalence of scabies in male dogs and female dogs was no difference as 5.96% and 5.25%. Euthanasia group showed higher prevalence (6.48%) than natural death group (2.44%) in scabies. Old dogs over five years showed lower infestation (1.82%) in scabies. In histopathological examination, there were mites in the burrows formed in the subcorneal space. Acanthosis, hyperkeratosis with crust, and vascular dilatation were main findings.

**Conclusion:** One hundred thirteen (20%) of 565 stray dogs were diagnosed to have skin disease. Among them, canine scabies is the most prominent ectoparasite as 5.66%. With previous reports on human infection in Korea, canine scabies must be regarded as the important zoonotic canine skin disease. Accordingly, for the human and canine hygiene it is imperative that stray dogs with skin problems are segregated and tested for parasites to treat properly as soon as arriving at rescue shelter.

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**OL-037 Effect of treatment with antifibrotic drugs in combination with PZQ in immunized Schistosoma mansoni infected murine model**

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**Background:** The main problem in schistosomal hepatic morbidity is fibrosis and extensive scarring induced by living eggs. In this study, we tried to study the effect of treatment using antihelminthic drug (PZQ) and/or antifibrotic drugs (PTX and silymarin) in combination with immunization.

**Methods:** The parasitological parameters, the dynamics of serum-specific immunoglobulins and splenic cytokines associated with changes in granuloma diameter were assessed. Naïve mice were immunized intravenously with 10 ug of SEA in three doses at 2 days intervals 6 weeks before infection. Animals were infected by tail immersion with 100 cercariae and divided into several groups. Three groups were treated with PZQ, PTX or silymarin administered alone. Another two groups were treated with PZQ combined with PTX or silymarin. All treated animals and respective controls were sacrificed 12 weeks post infection.

**Results:** Immunization did not affect worm reduction, but slight decrease in granuloma diameter, increase in immunoglobulins and cytokines was observed. Reduction in worm burden was associated with reduction in ova count and changes in oogram pattern which were mainly due to PZQ treatment. Increasing reduction in granuloma