Conclusions: Our findings suggest that the TUFM is a crucial molecule involved in resisting avian influenza virus infection in humans.

OUTBREAK INVESTIGATION OF PANDEMIC INFLUENA A H1N1 AT THE EMERGENCY DEPARTMENT IN A MEDICAL CENTER IN SOUTHERN TAIWAN

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Purpose: The outbreak attributed to pandemic influenza A H1N1(H1N1)pdm09 in the health care workers (HCWs) was rarely reported in the literature. We conducted an outbreak investigation of A(H1N1)pdm09 among the HCWs in the emergency department (ED) and characterized the temporal and in-hospital progression of A(H1N1)pdm09 as it emerged in the ED.

Methods: We included patients and HCWs with influenza-like illness (ILI) enrolled during August 2014—September 2014. Respiratory specimens were tested by influenza rapid test, real-time reverse transcriptase polymerase chain reaction (RT-PCR) and viral cultures. Full-genome sequencing for HA and NA segments were done and phylogenetic trees were built to compare the differences among A(H1N1)pdm09 strains.

Results: During this period, a total of 63 individuals suffered from ILI, including 20 patients and 43 HCW. A(H1N1)pdm09 was diagnosed in 41 individuals (20 patients and 21 HCWs). The most common presenting symptoms were fever (71.4%), cough (60.3%), sore throat (31.7%), and headache (22.2%). Three of the immune compromised patients had fatality related to A(H1N1)pdm09. The phylogenetic trees analysis for the HA and NA segments among 3 patients revealed strain similarity and no antiviral drugs resistance. The outbreak was halted by providing prophylactic zanamivir and adherence on infection control measurements.

Conclusions: Influenza outbreak is a serious public and health concern. Early detection of index case as well as implementations of HCWs education, hand hygiene, cohorting care and aggressive cleaning of the environment surfaces was important in stop the outbreak.

THE EFFECTS OF CYTOKINES ON SPONTANEOUS HEPATITIS B SURFACE ANTIGEN SEROCONVERSION IN CHRONIC HEPATITIS B VIRUS INFECTION

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Purpose: Chronic hepatitis B virus (HBV) infection remains a global health hazard. During the course of chronic HBV infection, hepatitis B surface antigen (HBsAg) seroclearance indicate the suppression of viral replication, while the HBsAg-seroconversion to its antibody (anti-HBs) indicates the clearance of HBV infection. We examined the roles of human cytokines in the natural course of spontaneous HBsAg-seroconversion in chronic HBV infection.

Methods: The clinical course of spontaneous HBsAg-seroconversion was assessed in 296 chronic HBV-infected patients. Single nucleotide polymorphisms (SNPs) in interleukin (IL)-1β, IL-2, IL-4, IL-10, IL-12, IL-13, IL-27, and interferon-γ were checked in 296 chronic HBV-infected patients and another 193 HBV-recovers. Furin (the downstream of IL-10 and IL-12 in hepcytocyes) was also knocked down in HepG2.2.15 cells (HBV replication competent hepatoma cells) to assess the impact on HBV virus and protein biosynthesis. The HBsAg “a determinant” sequence between chronic HBV-infected subjects with and without HBsAg-seroconversion was also analyzed.

Results: The start of immune-clearance phase (serum alanine aminotransferase [ALT] levels >30 IU/L) before 48 month-old, and hepatitis B e antigen (HBeAg) seroconversion before 10 year-old predict spontaneous HBsAg-seroconversion in chronic HBV-infected patients (Odds ratios >17.7 and 5.0; P < 0.001 and 0.002; respectively). The A-allele of IL-10 SNP rs3020317 was associated with higher IL-10 serum levels, and G-allele of IL-12 SNP rs321217 was associated with sustained high serum IL-12p70 levels during the immune-clearance phase. Both are predictors of spontaneous HBsAg-seroconversion/HBV-recovery (Odds ratios >4.0, and 26.3; P = 0.002, and <0.001, respectively). The knockdown of furin by siRNA in HepG2.2.15 hepatoma cells successfully suppressed the biosynthesis of HBeAg, HBsAg, and HBV viral load. Spontaneous HBsAg-seroconversion is not related to gender, HBV genotype, and HBsAg “a determinant” mutation.

Conclusions: The start of immune-clearance phase and HBeAg-seroconversion age, IL-10 and IL-12 are associated with the course of immune-clearance phase of chronic HBV infection, and predicts spontaneous HBsAg-seroconversion and HBV-recovery in human.

PREVALENCE AND RISK FACTORS OF HEPATITIS B INFECTION IN PREGNANT WOMEN AT THE PRENATAL CLINIC OF THE UNIVERSITY OF THE PHILIPPINES-PHILIPPINE GENERAL HOSPITAL

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Purpose: Perinatal transmission remains to be the leading cause of spread of hepatitis B virus (HBV) in the Philippines. This study aimed to determine the prevalence and risk factors of hepatitis B infection in pregnant women seeking prenatal care at the University of the Philippines-Philippine General Hospital (UP PGH).

Methods: Outpatient charts of consecutive pregnant patients at the prenatal clinic of UP PGH from January to July 2014 were reviewed. Information on age, marital status, educational attainment, residence, employment status, gravidity, history of abortion or stillbirth, number of sexual partners, history
of surgery, history of sexually transmitted infection, and results of screening test for syphilis were recorded. Univariate analysis and simple logistic regression were used to determine independent predictors of HBsAg positivity. A p-value of <0.05 was considered as statistically significant.

**Results:** A total of 768 outpatient charts were reviewed. The prevalence of HBsAg seropositivity was 9.6%. Among these, 11 were HBeAg positive (15.9%), HBsAg positive subjects compared with HBsAg negative subjects, tend to be older (p = 0.016), married (p = 0.0032), have multiple pregnancies (p = 0.0157), and have history of spontaneous abortion (p = 0.0458). The odds of having hepatitis B infection increased by 5% for every 1 year increase in age. It was 2.22 times higher among married compared to single subjects; 1.83 times higher among those with history of abortion compared with those without; and 2.00 times higher among those with at least 3 pregnancies than those with fewer pregnancies.

**Conclusions:** Prevalence of HBsAg seropositivity in pregnant women in PGH remains to be high despite screening guidelines and nationwide HBV vaccination. The prevention and control of HBV infection among women of childbearing age should be a priority of public health intervention.

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**PREDRALEVENLE OF HUMAN HERPESVIRUS TYPE 8 IN PATIENTS WITH PULMONARY TUBERCULOSIS IN TAIWAN**

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**Purpose:** Tuberculosis (TB) patients, similar to HIV-infected patients, have abnormalities of cellular immunity. There is a high prevalence of human herpesvirus type 8 (HHV-8) infections in HIV-infected patients without Kaposi’s sarcoma. This study aimed to evaluate seroprevalence in patients with pulmonary TB.

**Methods:** Blood samples collected from 101 pulmonary TB patients before treatment and 101 age- and sex-matched healthy controls were analyzed for lymphocyte and monocyte counts and for HHV-8 antibody and DNA. All subjects were negative for HIV antibody.

**Results:** Pulmonary TB patients had a much lower count of lymphocyte and a higher count of monocyte than the healthy controls (p < 0.0001, both). The seropositive rate of HHV-8 antibody was significantly higher in TB patients (30/101, 29.7%) than in controls (15/101, 14.9%) (p = 0.01). The titers of HHV-8 antibody in patients significantly exceeded those in controls (p = 0.006). The seropositive rates were not different between male and female TB patients. Lymphocyte and monocyte counts between seronegative and seropositive subjects were not different either. Four patients were positive for HHV-8 DNA. All the HHV-8 seropositive subjects did not have clinical manifestations of HHV-8 infection.

**Conclusions:** The study revealed a high HHV-8 seroprevalence in untreated pulmonary TB patients, which was not associated with lymphocyte or monocyte counts, or gender.

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**IMPACT OF BROAD SPECTRUM, PSEUDOMONAS-SPARING ANTIMICROBIAL TREATMENT ON MICROBIOLOGICAL ECOLOGY OF INTESTINAL FLORA**

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**Purpose:** We aimed to monitor the changes in bowel carriage of target resistant organisms (TROs), such as enterics, Pseudomonas, Acinetobacter, in patients treated with ertapenem or other Pseudomonas-sparring, broad spectrum antimicrobial agents (moxifloxacin, flomoxef). Risk factors for developing colonization of TROs were also analyzed.

**Methods:** The study prospectively enrolled the adult patients (more than 20 years old) who were indicated for at least 7-day course of ertapenem, flomoxef, or moxifloxacin. Rectal swabs were performed for the patients who received at least 1-day course of study antibiotics during the treatment duration. The TROs included Pseudomonas, enterics, and Acinetobacter. MacConkey agar with study antibiotics were used to isolate the TROs and evaluate the antibiotics resistance. Results: The mean age of our study population was 61.6 ± 16.5 years, and 58.8% were men. We found that the rectal swab colonization rate for Pseudomonas aeruginosa was similar between the three study antibiotics (ertapenem 13.2%, flomoxef 20%, moxifloxacin 14.3%, p = 0.899). In multivariate logistic regression analysis of the risk factors of ertapenem resistant E. coli colonization, the flomoxef (odds ratio 4.30; 95% C.I. 1.28-14.48, p = 0.019) and moxifloxacin (odds ratio 6.95; 95% C.I. 1.36-35.52, p = 0.019) usage were predictive of higher risk for colonization.

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**Table**

<table>
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<tr>
<th>Factors</th>
<th>Odds ratio</th>
<th>95% Confidence Interval</th>
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<td>Flomoxef(vs ertapenem)</td>
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<td>Moxifloxacin(vs ertapenem)</td>
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<td>0.019</td>
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<td>Male sex</td>
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<td>Antibiotics treatment duration</td>
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<td>0.92 - 1.14</td>
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</tbody>
</table>

*p The infection sites (urinary tract infection, lung infection) and underlying conditions (endocrine disease, hepatobiliary disease) with significant differences between the three groups were included in the multivariate model.*