diagnosis of SSSS. The antibiotic treatment was completed on the tenth day.

Conclusions: Symptoms and appearance of the disease suggested several diseases but the laboratory tests were normal, making the diagnosis more difficult, the supposed diagnosis did not fit properly for the patient age. Careful observation of patients and the disease, exfoliative cytology and a biopsy, microbiological investigations allow the diagnosis, ruling out erythema multiforme and drug-induced toxic epidermal necrolysis, both which are similar to SSS Syndrome.

394 Desensitization Protocol to Methotrexate
Jonathan Maya, MD, Blanca del Río, MD, Alexander Morales, MD, and Miguel Angel Rosas-Vargas, MD. Pediatric Allergy and Clinical Immunology, Hospital Infantil de Mexico Federico Gomez, Mexico City, Mexico.

Background: A 17 year old patient was referred to Allergy outpatient clinic with history of recent anaphylaxis (wheezing, breathlessness, nausea, vomit and hypotension) to methotrexate (MTX) during the induction treatment of ALL L2. The diagnostic confirmation consisted in a skin test, with a positive response at 1:100 dilution. The case was discussed together with Pediatric Oncology service, and was agreed that MTX was necessary for the patient survival, because of that we performed the following desensitization protocol.

Objective: Evaluate the effect and safety of a desensitization protocol to methotrexate in an adolescent with acute lymphoblastic leukaemia L2 (ALL L2) and allergy to methotrexate.

Methods: Desensitization protocol consisted in 2 phases. First phase consisted in premedication with hydrocortisone (IV) 1 mg/kg, cetirizine (PO) 0.2 mg/kg, chlorpheniramine (IV) 0.35 mg/kg and montelukast (PO) 10 mg/kg at 13, 7 and 1 hour prior to desensitization phase which consisted in an 8 hour scheme of IV infusion of 12 dilutions with increasing concentrations starting at 1:1,000,000 at 30 minutes intervals up to the full dose was completed.

Results: Patient was admitted to pediatric intensive care unit and was successfully desensitized, the full protocol was completed as expected, including pre-medication, the desensitization phase lasted 8 hours; at the second dilution (1:100,000) the patient presented nausea, requiring one extra dose of chlorpheniramine, no other adverse reactions were presented in the next 48 hours observation period. He was maintained with 50 mg/m² IV MTX weekly for the full anti-leukemia treatment duration (1–2 years) using the same protocol and stayed out of MTX-related adverse reactions. Today he is followed as an outpatient by our service.

Conclusions: This 12 steps MTX-desensitization protocol was effective and safe. In selected cases of severe allergic reactions to chemotherapeutic agents there where no other equally effective treatment option available, desensitization is effective and safe.

395 Clinical Features of Dress Syndrome in 42 Patients
Mi-Ran Park, MD,1 Ki-Ho Kim, MD, PhD,2 Su-Min Park, MD,1 Il-Hwan Jeong, MD,1 Neul-Bom Yoon, MD,1 Sung-Woo Lee, MD,1 Soo-Jung Um, MD,1 Soo-Kool Lee, MD, PhD, and Choon-Hee Son, MD, PhD. 1Internal Medicine, and 2Dermatology, College of Medicine, Dong-A University, Busan, South Korea.

Background: The clinical features of DRESS syndrome are complicated, and the incidence this condition is very low.

Methods: This study was a retrospective analysis of prospectively collected data in 42 consecutive patients with DRESS syndrome diagnosed between September 2009 and April 2011. We investigated the clinical features, response to treatment, and outcome of 42 patients.

Results: Study patients consisted of 18 men (42.9%) and 24 women (57.1%). The most common causative drugs were antibiotics (33.3%) and anticonvulsants (26.2%), followed by antituberculosis drugs (11.9%), allopurinol (7.1%), nonsteroidal anti-inflammatory drugs (NSAIDs) (7.1%), undetermined agents (7.1%), others (7.1%). The latency period ranged from 2 to 60 days, with a mean of 16.6 days. The longest latency period was noted in the antituberculosis drug group, 35.8 ± 16.2 days. Atypical lymphocytosis was noted in 16 patients (38.1%), and thrombocytopenia in 7 patients (16.7%). Hepatic involvement was noted in all study patients. Additionally, lung involvement was noted in 2 patients (5.8%), CNS involvement was in 1 patient (2.4%). Systemic corticosteroids were administered to 8 patients (19.0%). Complete recovery was noted in 40 patients (95.2%). Two patients had poor outcomes; one died due to opportunistic infection secondary to long-term systemic corticosteroids treatment and the other showed progressive deterioration of liver damage, although the final outcome is not known.

Conclusions: Drugs associated with DRESS syndrome were variable and most frequently included antibiotics and anticonvulsants. DRESS syndrome was more common than generally recognized, and most of patients with this disease showed better clinical out outcome than that has been generally expected.

396 Risk Factors Associated to Mortality in Mexican Children with Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis
Luis Octavio Hernandez-Mondragon, MD,1 Blanca del Rio, MD,2 Armando Partida-Gaytan, MD,4 Eduardo Almeida-Gutierrez, MD, PhD,3 and Miguel Angel Rosas-Vargas, MD.2 Pediatric Allergy and Clinical Immunology, Hospital Infantil Federico Gomez, Mexico City, Mexico; 2Pediatric Allergy and Clinical Immunology, Hospital Infantil de Mexico Federico Gomez, Mexico City, Mexico; 3UMAE Cardiologia - Centro Medico Nacional Siglo XXI - IMSS, Mexico City, Mexico.

Background and Objective: Identify risk factors associated to mortality in Mexican children with Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis.

Methods: Cross-sectional analytical study. We reviewed the medical records of patients with hospitalization and primary diagnosis of Stevens-Johnson syndrome (SJS) or Toxic Epidermal Necrolysis (TEN) from January 1995 to May 2011. Our study variables have been previously described. We describe median (interquartile range: IR) and percentage. Exact Fisher test, Mann Withney U and binary logistic regression were used.

Results: We obtained 51 medical records: 24 male (47.1%), 27 female (53%). Median age was 5 years (IR 2–8). Thirty eight (76%) corresponded to SJS, four (7.8%) to SJS-TEN overposition and nine (17.5%) to TEN. Mortality was seen in 9 patients (17.6%), 6 male [66.7%] and 3 female [33.3%], P > 0.05. Twenty two cases (43%) were attributed to anticonvulsive drugs, twenty (39%) to antibiotics, two (4%) to non-steroid anti-inflammatory drugs, two (4%) to infection, one (2%) to chemotherapeutic drugs, and in two (4%) no trigger factor was identified. Risk factors associated to mortality were: denudation of >30% Body Surface Area (BSA) (7.1% vs 55.6% P < 0.001), concomitant malignancy (0% vs 22.2% P < 0.028), moderate leukopenia (<1,000 cells/mL) (0% vs 33.3%, P < 0.001), leukocytosis (>20,000 cells/mL) (7.3% vs 22.2%, P < 0.001), hypokalemia (<3.5 mEq/L) (5.6% vs 33.3%, P < 0.011), hyperkalemia (>5.0 mEq/L) (5.6% vs 22.2%, P < 0.011). Total bilirubin concentration >3.6 mg/dl has tendency to associate with mortality, P = 0.08. Six patients (11.7%) were treated with steroids, fifteen (29.4%) with IV human immunoglobulin and one (1.9%) with both drugs, no statistical difference was observed, though the steroid-treated group showed a tendency towards mortality increase. Some variables were not able to analyze due incomplete medical records.

Conclusions: Risk factors associated to mortality in patients with SSJS/TEN identified in this study are: skin denudation >30% BSA, concomitant malignancy, leucopenia, leukocytosis, hypokalemia and hyperkalemia. Total
biliubin concentration >3.6 mg/dL has tendency to associate with mortality, although not statistically significant.

**DUST MITE ALLERGY**

**397 Standardization and Characterization of Dust Mite Extracts Manufactured in the USA**

Greg Plunkett, PhD. ALK-Abello, Round Rock, TX.

**Background:** Standardized *Dermatophagoides* dust mite extracts are produced in the US from purified whole bodies. Growth media and the processes for separating mites from media vary among manufacturers. The FDA requires that mite extracts are standardized and labeled in AU/mL. Potency is determined using a laboratory ELISA competition method to compare the product with an FDA reference. The method measures binding of IgE from an FDA supplied sera pool to antigens bound to an ELISA plate and AU is calculated from the ability of the test extract to inhibit the binding relative to the 10,000 AU/mL FDA reference. Since this is the only FDA requirement for potency, the purpose of this study was to compare mite extracts from different US manufacturers for protein complexity, major allergen, and potency using various biochemical characterization techniques.

**Methods:** Der group 1 and 2 allergens were measured in mite extracts from several manufacturers produced over the last 8 years using validated ALK immunoassays. Competition IgE binding was performed using FDA references and sera pools. The effect of the immobilized extract on the relative potency compared to the FDA reference was determined. Protein profiles were determined using SDS-PAGE.

**Results:** The average Der 1 and Der 2 levels and ratio in 10,000 AU/mL products varied considerably (Der 1: 25–140 μg/mL, Der 2: 2–140 μg/mL). The ratio of Der 1/Der 2 was manufacturer related and ranged from 1:1 to more than 10:1. The extract used to coat the ELISA plates had a marked impact on Relative Potency (RP) with up to a 3-fold difference. RP determined by competition IgE binding was correlated with major allergen content but the difference in potency was obtained by coating with different batches of 10,000 AU/mL mites.

**Conclusions:** Often called a “total” IgE test, the competition IgE ELISA is highly dependent on the allergen used to coat the plastic microplate. US mite extracts with the same AU/mL can have very different Der 1 and 2 content.

**398 Detection of DER P 2 in the House Dust and Correlation with Mite Number in an Environmental Survey**

Jaw-Ji Tsai, MD, PhD, Yi-Hueh Lin, MS, and En-Chih Liao, PhD. Department of Medical Research, Taichung Veterans General Hospital, Taichung, Taiwan.

**Background:** Aeroallergen avoidance has been promoted in order to prevent sensitization and the correlation between the level of allergen exposure and sensitization has been reported. The aims of this study were to monitor the environmental mite infestation and design a Der p 2 detection kit to estimate the number of mites in house dust samples.

**Methods:** House dust samples were collected from 6 carpets and 2 mattresses monthly from April 2010 to March 2011. The total number of mites was counted under microscopes and Der p 2 concentrations were measured using Der p 2 ELISA kit. The detection kit was constituted using Der p 2 specific mouse monoclonal antibody as capture antibody, and rabbit polyclonal antibody as detection antibody. Both Der p crude extract and rDer p 2 were used as internal standard.

**Results:** The number of mites in the dust samples was significantly higher in the mattresses in comparison with that in the carpets and the total number of dust mites was higher in the summer than any other seasons. The concentration of Der p 2 component in Der p crude extract was analyzed and the result showed that each gram of Der p crude extract contained 25.53 mg of Der p 2. When the number of mites and Der p 2 concentration were measured for the correlation analysis the results showed that there was a good correlation between Der p 2 and number of mites with $R^2 = 0.9652$.

**Conclusions:** Dust mites were significantly increased in the dust samples collected from mattresses especially in the summer. The good correlation between Der p 2 concentration and mite numbers indicated that the measurement of Der p 2 can be used to replace direct mite count. Using the Der p 2 detection to monitor environmental mite infestation may be beneficial for allergic subjects to prevent disease activation.

**399 Daily Vacuum Cleaning Significantly Reduces House Dust Mite Allergen, Endotoxin and β-glucan Content of Mattresses**

Francis Fu-Sheng Wu,1,2 Rob Siebers,2 Mei-Wen Wu,3 Nevil Pierse,2 and Julian Crane.1 1Show Chwan Memorial Hospital, Changhua City, Taiwan; 2University of Otago, Wellington, New Zealand; 3Changhua Christian Hospital, Changhua City, Taiwan.

**Background:** House dust mite allergic patients are advised to cover their mattresses with covers to reduce exposure to indoor bio-contaminants; however, these are not cheap. We investigated whether daily vacuum cleaning of mattresses reduces house dust mite allergens, bacterial endotoxin and fungal β-glucan content.

**Methods:** Twenty volunteers vacuumed their mattress daily for 8 weeks. Dust samples, collected at two weekly intervals were analysed for house dust mite allergens (Der p 1 and Der f 1) by double monoclonal antibody ELISA and for endotoxin and β-glucan by the Limulus amoebocyte lysate kinetic assay. Data are presented as geometric means with 95% CI.

**Results:** Total house dust mite allergens (Der p 1 + Der f 1) significantly reduced from a geometric mean (95% CI) of 4.07 μg (2.44-6.79) at the start to 0.42 μg (0.21-0.81) at week 8. Total endotoxin and β-glucan were also significantly reduced from 13.6 EU (8.6-21.4) to 3.4 EU (2.3-5.0) from 94.4 μg (57.1-156.2) to 19.7 μg (10.2-37.9) respectively (P for trend >0.0001). Percentage reductions in total house dust mite allergens, endotoxin and β-glucan after 8 days of weekly vacuum cleaning were 85.1% (80.1-90.1), 71.0% (70.4-81.0) and 75.7% (70.4-81.0) respectively. This was mainly due to a 77.7% (70.8-84.7) reduction in total dust. The decrease in allergen concentration was significantly higher in the mattresses in comparison with that in the carpets and the total number of dust mites was higher in the summer than any other seasons. The number of mites and Der p 2 concentration were measured for the correlation analysis the results showed that there was a good correlation between Der p 2 and number of mites with $R^2 = 0.9652$.

**Conclusions:** Dust mites were significantly increased in the dust samples collected from mattresses especially in the summer. The good correlation between Der p 2 concentration and mite numbers indicated that the measurement of Der p 2 can be used to replace direct mite count. Using the Der p 2 detection to monitor environmental mite infestation may be beneficial for allergic subjects to prevent disease activation.