June 29 (Saturday)  16:50-17:50   Room 2 (Small Auditorium)

**Rapid Fire-Day 2**

Chairs: Careen Yen Lowder (USA)  
Nobuyoshi Kitaichi (Japan)  
Hiroshi Keino (Japan)

**RF2-1**  
Anti-inflammatory effects of DHMEQ on ARPE-19 cells  
Yoshimasa Ando (Japan)

**RF2-2**  
Opportunistic ocular infection in systemic associated chronic uveitis patients receiving biologics  
Ayesha Mohd Zain (Malaysia)

**RF2-3**  
Outcome of long-term infliximab treatment for Behçet's uveitis over 5 year  
Kimiko Okinaga (Japan)

**RF2-4**  
Clinical features of Behçet's disease in Mongolia: A multicenter study  
Javzandulam Balt (Mongolia)

**RF2-5**  
Temporal trends in ocular manifestations of Behçet's disease in Tunisia between two decades  
Moncef Khairallah (Tunisie)

**RF2-6**  
Cat Scratch Disease (CSD)- A Cat Lover Trouble  
Nazima Shadaht Ali (Malaysia)

**RF2-7**  
Experience of sympathetic ophthalmia in a tertiary referral center in southern Taiwan  
Shih-Chou Chen (Taiwan)

**RF2-8**  
Analysis of clinical features in 17 patients with tubulointerstitial nephritis and uveitis syndrome  
Kinya Tsubota (Japan)

**RF2-9**  
Effect of Antituberculous Therapy on Uveitis Associated With Latent Tuberculosis  
Oren Tomkins-Netzer (England)

**RF2-10**  
Pattern of Tubercular Uveitis in Bangladesh  
Shah Md Bulbul Islam (Bangladesh)

**RF2-11**  
Mortality Risk for Patients with Cytomegalovirus Retinitis and Acquired Immune Deficiency Syndrome  
Yan Tong Koh (Singapore)

**RF2-12**  
Immune cell profiling in CMV anterior uveitis identifies NK cell subsets with CMV response potential  
Nobuyo Yawata (Japan)
RF2-1  Anti-inflammatory effects of DHMEQ on ARPE-19
Yoshimasa Ando1, Hiroshi Keino1, Akihiko Kudo2, Akito Hirakata1, Ayane Annabeille Okada1, Kazuo Umezawa3
1Department of Ophthalmology, Kyorin University School of Medicine, Tokyo, Japan, 2Department of Anatomy, Kyorin University School of Medicine, Tokyo, Japan, 3Department of Molecular Target Medicine Screening, Aichi Medical University, Aichi, Japan

[Purpose] We investigated the anti-inflammatory effect of Dehydroxymethylepoxyquinomicin (DHMEQ) in cultures of the cultured human retinal pigment epithelium (RPE).

[Methods] ARPE-19 cells exposed to tumor necrosis factor-α (TNF-α) were cultured in the presence or absence of DHMEQ. Cell viability was assessed by cell proliferation assay. The level of IL-8 and monocyte chemoattractant protein (MCP)-1 in supernatant of cultured ARPE-19 cells was assessed by ELISA. The degree of expression of intercellular adhesion molecule-1 (ICAM-1) and apoptosis was measured by flow cytometry. NF-κB-related gene expression was determined using Human NF-κB pathway plate. [Results and Discussion] Viability of ARPE-19 cells was not reduced in the presence of DHMEQ at doses up to 10 μg/ml. The level of IL-8 and MCP-1 was significantly decreased in the presence of DHMEQ (10 μg/ml). DHMEQ down-regulated ICAM-1 expression on TNF-α-stimulated ARPE-19 cells. DHMEQ suppressed inflammatory cytokine-related genes (MCP-1, ICAM-1, IL-6) and Toll-like receptors (TLR2, TLR3, and TLR4). DHMEQ remarkably suppressed tumor necrosis factor superfamily member 15 (TNFSF15) and tumor necrosis factor-α induced protein 3 (TNFAIP3).

[Conclusions] DHMEQ demonstrated the anti-inflammatory effect on TNF-α stimulated ARPE-19 cells. These findings indicate that DHMEQ may have a therapeutic effect on TNF-α mediated inflammatory disorders in the eye.

RF2-2  Opportunistic ocular infection in systemic associated chronic uveitis patients receiving biologics
Ayasha Mohd Zain1, Hafizria Mohd Isa2, Mushawiah Mustapha1
1Faculty of Medicine, University Kebangsaan Malaysia, Kuala Lumpur, Malaysia, 2Gemenegles Hospital, Kuala Lumpur, Malaysia

Background: Ocular inflammation in systemic associated uveitis can vary in severity. Aggressive disease may be poorly controlled by conventional therapies. Effectiveness of biologics in the treatment of refractory uveitis offer a promising alternative. These agents however predispose patients to opportunistic infection.

Case: This case series describes three patients with systemic associated chronic uveitis namely granulomatosis with polyangiitis, Behçets disease and juvenile idiopathic arthritis. Ocular and systemic inflammation were poorly suppressed despite long-term treatment with corticosteroids and multiple immunomodulators. They were eventually started on biologic agents which were rituximab, infliximab and adalimumab respectively. Marked ocular and systemic improvements were observed in all patients. Unfortunately patients developed opportunistic viral retinitis which requires systemic anti-viral agents. All three patients responded well and the systemic diseases stabilized. However one patient had rheumatogenous retinal detachment secondary to acute retinal necrosis requiring trans-pars-plana vitrectomy.

Conclusion: Biologics agents showed promising results in controlling ocular inflammation as well as systemic disease in recalcitrant systemic associated chronic uveitis. However, patients have increased susceptibility to opportunistic infections. High index of suspicion and prompt anti-microbial treatment are the key to curb the infection and at the same instance controlled the disease process.
RF2-3 Temporal trends in ocular manifestations of Behçet's disease in Tunisia between two decades
Moncef Khairallah1, Nesrine Abroug1, Imen Ksiaa1, Melek Kechida2, Safa Ben Aoun1, Ines Khochtali1, Sana Khochtali1
1Department of Ophthalmology, Fattouma Bourguiba University Hospital, Monastir, Tunisia, 2Department of Endocrinology and Internal Medicine, Fattouma Bourguiba University Hospital, Monastir, Tunisia

Purpose: To compare ocular involvement of Behçet disease (BD) between the past 2 decades. Methods: Retrospective review of the medical charts of BD patients diagnosed according to the ISG for BD criteria in the Internal Medicine or the Ophthalmology Department of Fattouma Bourguiba University Hospital (Monastir, Tunisia). A comparative study of clinical characteristics of the patients was performed between 1995–2005 (Group 1) and 2006–2017 (Group 2). Results: We recorded 225 patients. The proportion of males increased from 61.4 percent to 75.5 percent between the two periods (p=0.025). Eye involvement was the initial disease manifestation in 14 patients (11 percent) from Group 1 and in 15 patients (15.3 percent) from Group 2 (p=0.46). Eighty-six patients (38.2 percent) developed ocular manifestations during the 23-year study period. A slight increase in ocular involvement (33.1 percent vs 45.4 percent) was noticed (p=0.081). Intermediate uveitis was more frequent in Group 2 than in Group 1 (9.5 vs 22.7 percent; p=0.028). Conversely, posterior uveitis was less frequent in Group 2 than in Group 1 (23.8 vs 18.2 percent; p=0.006). Ocular complications including cataract, glaucoma, and macular edema were less common in Group 2 than in Group 1, although the difference was not statistically significant. Conclusion: BD tends to less affect females, with a slight increase in the rate of ocular involvement. Intermediate uveitis is becoming more frequent than posterior uveitis. This may reflect a real change in the epidemiology of BD or a better screening.

RF2-4 Analysis of clinical features in 17 patients with tubulointerstitial nephritis and uveitis syndrome
Kinya Tsubota, Yoshihiko Usui, Hiroshi Goto
Tokyo Medical University, Tokyo, Japan

Purpose: Most analyses of tubulointerstitial nephritis and uveitis (TINU) syndrome were based on single case reports, small case series, and multicenter studies because the rarity. We analyzed the clinical features of a relatively large number of cases of TINU syndrome in a single center. Methods: We retrospectively reviewed the medical records of 17 patients (4 males, 13 females) diagnosed with TINU syndrome between 2000 and 2018 at the Department of Ophthalmology, Tokyo Medical University Hospital. Results: Among 3,287 new uveitis patients visited our hospital during the above period, 17 patients (0.5%) were diagnosed with TINU syndrome. Mean age was 18.8±15.2 years at the time of diagnosis. Mean follow up period was 15.4±23.8 months. Mean logMAR was 0.07±0.44 at the first visit, and -0.07±0.17 at the final visit. All patients had iritis, 11 patients (65%) had optic disc hyperemia and swelling and 13 patients (76%) had optic nerve dysfunction and macula atrophy. Poor vision was attributed to optic nerve dysfunction and macula atrophy.

RF2-5 Cat Scratch Disease (CSD)- A Cat Lover Trouble
Nazima Shadaht Ali, Shelina Oli Mohamed, Nor Fariza Ngah, Roslin Azni Aziz
Department of Ophthalmology, Hospital Shah Alam, Selangor, Malaysia

We report a retrospective observational case series of neuroretinitis as a manifestation of cat scratch disease (CSD) among patients who presented to the Ophthalmology clinic, Hospital Shah Alam between January 2017 and August 2018. There were 7 patients and all except 1 had cats at home. Patients were aged between 17 to 43 years. Six were female. Four had prior fever. Onset of visual symptoms to presentation varied between 4 days & 3 month. Presenting visual acuity (VA) ranged from 6/6 to hand movement (HM), 3 had bilateral involvement. RAPD was positive in two and 4 eyes had an abnormal baseline Ishihara (available in 7 eyes). All presented with optic disc swelling and one had optic disc granuloma. Partial macula star was seen in 7 eyes and a complete star in 3 eyes at baseline. Choroiditis and vasculitis was seen in 5 and 4 eyes respectively. Optical coherence tomography (OCT) showed subretinal fluid in 7 eyes and peripapillary fluid in all eyes. Foveal atrophy was seen in 5 eyes at baseline and in 7 eyes upon completion of treatment. All patients had a positive Bartonella hensaelae serology and were treated with oral doxycycline for 6 weeks. All except 2 received inflammatory doses of oral corticosteroids. 6 eyes had good final VA of 6/12 or better. Two out of 3 eyes had poor final VA due to optic nerve dysfunction & the third secondary to macula atrophy. In conclusion, Neuroretinitis secondary to CSD was prevalent among cat lovers. Visual outcomes were generally good with treatment. Poor vision was attributed to optic nerve dysfunction and macula atrophy.

RF2-6 Cat Scratch Disease (CSD)- A Cat Lover Trouble
Kinya Tsubota, Yoshihiko Usui, Hiroshi Goto
Tokyo Medical University, Tokyo, Japan

We report a retrospective observational case series of neuroretinitis as a manifestation of cat scratch disease (CSD) among patients who presented to the Ophthalmology clinic, Hospital Shah Alam between January 2017 and August 2018. There were 7 patients and all except 1 had cats at home. Patients were aged between 17 to 43 years. Six were female. Four had prior fever. Onset of visual symptoms to presentation varied between 4 days & 3 month. Presenting visual acuity (VA) ranged from 6/6 to hand movement (HM), 3 had bilateral involvement. RAPD was positive in two and 4 eyes had an abnormal baseline Ishihara (available in 7 eyes). All presented with optic disc swelling and one had optic disc granuloma. Partial macula star was seen in 7 eyes and a complete star in 3 eyes at baseline. Choroiditis and vasculitis was seen in 5 and 4 eyes respectively. Optical coherence tomography (OCT) showed subretinal fluid in 7 eyes and peripapillary fluid in all eyes. Foveal atrophy was seen in 5 eyes at baseline and in 7 eyes upon completion of treatment. All patients had a positive Bartonella hensaelae serology and were treated with oral doxycycline for 6 weeks. All except 2 received inflammatory doses of oral corticosteroids. 6 eyes had good final VA of 6/12 or better. Two out of 3 eyes had poor final VA due to optic nerve dysfunction & the third secondary to macula atrophy. In conclusion, Neuroretinitis secondary to CSD was prevalent among cat lovers. Visual outcomes were generally good with treatment. Poor vision was attributed to optic nerve dysfunction and macula atrophy.
**RF2-9 Effect of Antituberculous Therapy on Uveitis Associated With Latent Tuberculosis**

Oren Tomkins-Netzer1,2,3, Belinda Leong4, Xiaozhe Zhang1,2,3,4,5,6

Australia, 5Sydney Eye Hospital, Sydney, Australia, 6Westmead Hospital, Sydney, London, England, 3Department of Ophthalmology, Bnai Zion Medical Center, Technion, Israel Institute of Technology, Haifa, Israel, 4University of Sydney, Sydney, Australia, 5Sydney Eye Hospital, Sydney, Australia, 6Westmead Hospital, Sydney, Australia

Purpose: To describe the clinical features of patients with uveitis associated with latent tuberculosis (TB) and examine the effect of anti TB treatment (ATT) on uveitis outcome. Design: Retrospective cohort study. Methods: One hundred ninety nine eyes of 129 patients diagnosed with uveitis associated with latent TB were evaluated for recurrence of disease following treatment. Eighty nine of the patients (69%) received ATT and information was gathered retrospectively regarding clinical outcome, vision, and treatment. Outcome measures included BCVA and rate of disease recurrence. Results: This study included 89 patients (69%) who received ATT and 40 patients who did not. The uveitis was treated with local and systemic anti inflammatory and immunosuppressive therapy in all patients. The mean change in BCVA following treatment was 4.5 ± 1.4 letters over the follow-up period, with no difference between eyes of patients receiving ATT and those who did not. Sixty eight eyes (54.9%) had a recurrence of uveitis (0.64 ± 0.08 recurrences per year), with eyes of patients receiving ATT less likely to develop a recurrence compared to those not receiving ATT (29.5% ± 48.2%, odds ratio 0.47, 95% confidence interval 0.29 to 0.77, P = .003). Eyes treated with ATT recurred at an estimated median of 120 months, compared with 51 months in eyes with no treatment (P = .005). Conclusions: Treatment with ATT halved the risk of uveitis recurrence and delayed the onset of the first recurrence in eyes with uveitis associated with latent TB.

**RF2-10 Pattern of Tubercular Uveitis in Bangladesh**

Shah Md Bulbul Islam1, Shah Md Rajibul Islam2, Zahedur Rahman1

1Ben Sina Medical College, Dhaka, Bangladesh, 2Vision Eye Hospital, Dhaka, Bangladesh, 3Bangladesh Eye Hospital, Dhaka, Bangladesh

Purpose: Observe different types of tuberculous uveitis in Bangladesh Methods: Prospective observational study among 652 uveitis cases spanning from 2009-2015. Result: Total number of TB uveitis were 70 (10.7%) of the observed cases which is quite high. Anatomically anterior uveitis 16 (2.45%), intermediate uveitis was 20 (3.07%), 17 (2.61%) patients had chorioretinitis & 17 (2.61%) suffered from panuveitis. Younger males were predominant & reported with sudden loss of vision & vasculitis. Conclusion: Since TB is endemic in Bangladesh & no organ is immune; a thorough multicenter study is needed to observe the epidemiology.

**RF2-11 Mortality Risk for Patients with Cytomegalovirus Retinitis and Acquired Immune Deficiency Syndrome**

Yan Tong Koh, Rupesh Agrawal

Department of Ophthalmology, Tan Tock Seng Hospital, Singapore, Singapore

Purpose: Cytomegalovirus retinitis (CMVR) is the most common opportunistic ocular infection in patients with Acquired Immune Deficiency Syndrome (AIDS). This study assesses potential risk factors for all-cause mortality in patients with concurrent AIDS and CMVR.

Methods: Retrospective observational cohort study of all patients with AIDS and CMVR presenting to a tertiary referral eye care centre from 2004 to 2015.

We analysed the relationship of time to mortality with pertinent clinical features using Kaplan-Meier analysis and hazard ratio. Results: 144 CMVR patients with mean age of 45.8 years were included. Median CD4 count at diagnosis was 25.5 (IQR 19-51) cells/mm3. Patients with final CD4 count <20 cells/ mm3 had a recurrence of disease (0.64 ± 0.08 recurrences per year), with eyes of patients receiving ATT less likely to develop a recurrence compared to those not receiving ATT (29.5% ± 48.2%, odds ratio 0.47, 95% confidence interval 0.29 to 0.77, P = .003). Eyes treated with ATT recurred at an estimated median of 120 months, compared with 51 months in eyes with no treatment (P = .005). Conclusions: Treatment with ATT halved the risk of uveitis recurrence and delayed the onset of the first recurrence in eyes with uveitis associated with latent TB.

**RF2-12 Immune cell profiling in CMV anterior uveitis**

Nobuyo Yawata1,2,3, Jay Siak3,4,5, Soon-Phaik Chee3,4,5,6, Makoto Yawata1,2,3,4,5,6, Kohei Sonoda3,4,5,6

1Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan, 2Fukui Dental College, Department of Medicine, Fukuoka, Japan, 3Singapore Eye Research Institute, Singapore, Singapore, 4Duke-NUS Medical School, Singapore, Singapore, Singapore, 5Singapore National Eye Centre, Singapore, Singapore, 6Yong Loo Lin School of Medicine, National University of Singapore, Department of Ophthalmology, Singapore, Singapore

Purpose: The mechanisms of CMV Anterior Uveitis (CMV-AU) are unknown. Here, we studied the role of NK cells in CAU. NK cells are innate lymphocytes with effector potential against CMV, and it is known that CMV infection leaves an imprint on the NK cell populations, such as the expansion of NKG2C+CD57+CD16+CD56- NK subsets. Methods: 15 CMV-patients and 15 age-matched CMV seropositive healthy individuals were recruited in this study. We compared the NK cell profiles using high-dimensional flow cytometry. Unsupervised hierarchical clustering was conducted to identify cluster phenotypes. A CMV-pp65 random peptide library was used to induce proinflammatory cytokine responses which were quantified by NK cells upon CMV-pp65 stimulation. Results and Discussion: We identified 3 NK cell subsets that differed in frequencies between CMV-AU and CMV-IgG+ controls. These NK cell subsets differed in expression of CD57, NKG2C and KLRG1. The NK subset expanded in the CMV-IgG+ controls (CD57+ KLRG1+) displayed the most mature phenotype. Intermediate levels of maturation were observed in the CD57+ KLRG1+ subsets increased in CMV-AU, although these subsets differed in NKG2C expression. Notably, a significant increase in IFNg production was observed in the CD57+ KLRG1+ NKG2C+ NK cells upon CMV-pp65 stimulation. Conclusions: These results infer that CMV-AU patients have unique NK subsets which are likely involved in the ocular inflammation.