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)*

Rapid Fire-Day 2

RF2-1 Anti-inflammatory effects of DHMEQ on ARPE-19 cells

Yoshimasa Ando[1], Hiroshi Keino[1], Akihiko Kudo[2], Akito Hirakata[1], Ayame Annabelle Okada[1], Kazuo Umezawa[3]

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[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

Ayesha Mohd Zain[1], Hazlita Mohd Isa[2], Mushawiahti Mustapha[1]

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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 rhegmatogenous 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 Outcome of long-term infliximab treatment for Behçet's uveitis over 5 year

Kimiko Okinaga[1], Rie Tanaka[2], Keiko Komae[2], Hidetomo Izawa[2], Hisae Nakahara[2], Shintaro Shirahama[2], Hirotsugu Soga[2], Hisako Ono[2], Atsushi Yoshida[2], Hidetoshi Kawashima[3], Toshikatsu Kaburaki[2]

[1]Saitama Red Cross Hospital, Saitama, Japan, [2]Faculty of Medicine and Graduate School of Medicine, The University of Tokyo, Tokyo, Japan, [3]Jichi Medical University, Shimotsuke, Japan

[Purpose] To examine the long-term effects of infliximab (IFX) for the treatment of Behçet's uveitis (BU). [Methods] The study included 36 patients with BU who were treated with IFX therapy at The University of Tokyo Hospital and followed up for at least 5 years. Demographic data of patients, the number of ocular attacks (OAs) before and after starting IFX, best corrected-visual acuity (BCVA), concomitant medications, and the numbers of discontinued cases and the reasons were retrospectively examined using the patients' medical records. [Results and Discussion] The patients were 28 males and 8 females and 39.2 ± 10.2 years old at the initiation of IFX. The disease type were 17 cases of complete type and 19 cases of incomplete type. Nine patients (25.0%) discontinued treatment for the following reasons: side effects (3), insufficient efficacy (1), remission (1), patient decision (3), and carcinogenesis (1). The duration of follow-up after starting IFX was 9.0 ± 2.0 years. The number of OAs in the year before the start of treatment was 7.0 ± 5.3/year, compared with a rate of 2.2 ± 3.2/year after treatment, with the rate further declining with prolonged treatment. There was no significant change in BCVA after starting IFX. The amounts of concomitant medications administered were also decreased after starting IFX. [Conclusions] Because of a continuous decrease of OAs and preservation of BCVA after starting IFX, we concluded that IFX was effective for treating BU in long-term use over 5 years.

RF2-4 Clinical features of Behçet's disease in Mongolia: A multicenter study

Javzandulam Balt[1], Sarantuya Jav[2], Zulgerel Dandii[3], Yukihiro Horie[4], Nobuyoshi Kitaichi[4,5], Shigeaki Ohno[4,5], Baasankhuu Jamyanjav[1]

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Objective: Aim of the present study is to investigate the clinical features and ocular manifestations of the patients with Behçet's disease (BD) in Mongolia. Methods: Patients were registered and analyzed from six medical institutions in Mongolia from 1998 to 2019. BD was diagnosed according to the diagnostic criteria for BD established by International Study Group. Results: There were sixty-seven patients (23 men and 44 women) between 1998 and 2019, and the age of the disease onset was from 11 to 66 (mean±SD:22.3±10.0) years old. Oral aphthous ulcers, genital ulcers, skin lesions, ocular lesions, and pathergy test were seen in 100.0%, 88.1%, 80.6%, 64.2%, and 6.1%, respectively. Estimated prevalence of BD in 2017 was 2.1 per 100,000 population. Ocular lesions were more frequent in men (87.0%, $p<0.01$) and genital ulcers were more frequent in women (95.5%, $p<0.05$). Among the patients with ocular lesions, panuveitis was recognized more frequently in men than in women (75.0% vs 34.8%, $p<0.05$). Poor visual prognosis, equal to or worse than 0.1 or 20/200, was seen significantly higher in men than in women (40.0% vs 13.0%, $p<0.01$). Nasal mucous membrane ulcers were seen in 62.7%. Articular lesions were observed in 89.6% of BD patients, which was more frequent than in other countries. Conclusion: We presented the clinical manifestations of BD in Mongolia. Panuveitis was more frequent in men than in women, and visual prognosis was significantly worse in men. Nasal mucous membrane ulcers were frequently seen in Mongolian BD patients.

RF2-5 Temporal trends in ocular manifestations of Behçet's disease in Tunisia between two decades

Moncef Khairallah[1], Nesrine Abroug[1], Imen Ksiaa[1], Melek Kechida[2], Safa Ben Aoun[1], Ines Khochtali[2], Sana Khochtali[1]

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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=0.061). 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.

RF2-6 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 & 1 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 hensalae 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.

RF2-7 Experience of sympathetic ophthalmia in a tertiary referral center in southern Taiwan

Shih-Chou Chen, Shwu-Jiuan Sheu

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Purpose: In this study, we described our experience of sympathetic ophthalmia (SO) in a tertiary center in southern Taiwan.
Methods: Retrospective chart review of patients diagnosed and treated as SO from January 2011 to December 2018 at Veteran General Hospital, Kaohsiung, Taiwan were collected.
Results and Discussion: We collected 12 patients, including 7 (58.3%) male patients and 5 (41.7%) female patients. Five patients developed SO after ocular penetrating trauma, and 7 patients developed SO after ocular surgery. Among the 7 patients following ocular surgery, there were 5 patients with vitrectomy, 1 patient with penetrating keratoplasty, and 1 patient with cataract surgery. All patients received oral steroids following intravenous methylprednisolone pulse therapy or high dose oral steroids alone, and immunosuppresants were added in some cases. Baseline characteristics, interval between insult and SO, initial and final visual acuity, and ocular presentation were collected and analyzed. Regarding the cause of SO, the proportion of eye surgery increases in trend in recent years.
Conclusions: We described our experience of SO in a tertiary referral center in southern Taiwan. Although SO may lead to irreversible visual loss if not treated properly in a timely manner, early detection and proper treatment often save the vision.

RF2-8 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 retinal vasculitis confirmed by fluorescein angiography. Mean urinary β2 microglobulin was 1,375±890 μg/l and mean urinary N-acetylglucosaminidase was 10.0±4.2 IU/l, respectively. All patients were treated with topical corticosteroids, 9 patients (53%) with systemic corticosteroids, 5 patients (29%) with immunosuppressive agents, and 2 patients (12%) with biologic agent.
[Conclusion] Because of the difference in severity among patients with TINU syndrome, various treatment modalities should be considered.

RF2-9 Effect of Antituberculous Therapy on Uveitis Associated With Latent Tuberculosis

Oren Tomkins-Netzer[1,2,3], Belinda Leong[5], Xiaozhe Zhang[1,2], Sue Lightman[1,2], Peter McCluskey[4,5], Sophia Zagora[2,4,5], Christine Younan[4,5,6], Sydney-London Latent Ocular TB Group[1,2,3,4,5,6]

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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 (34.9%) 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% vs 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 Islam[1], Shah Md Rajibul Islam[2], Zahedur Rahman[3]

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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 chroiditis & 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

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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 and 20-50 cells/ mm3 were more likely to experience a decreased time to mortality 10.9 months (95% CI: 5.3-16.5) and 16.4 months (95% CI: 4.9-27.9) respectively, compared to patients with final CD4 count <50 cells/ mm3 (116.1 months, HR: 18.2, 95% C.I: 8.7-37.9, p<0.001). Patients with bilateral involvement also experienced a shorter time to mortality (HR: 1.82, 95% CI: 1.02 to 3.24, p = 0.043).

Conclusion: Bilateral disease and final CD4 counts <50 cells/ mm 3 in patients with concomitant AIDS and CMVR were associated with decreased survival time.

RF2-12 Immune cell profiling in CMV anterior uveitis identifies NK cell subsets with CMV response potential

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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 ^{pos}CD57 ^{pos}NK subset.
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 cell subset.
Results and Discussion
We identified 3 NK cell subsets that differed in frequencies between CMV-AU and CMV-IgG ^{pos} controls. These NK cell subsets differed in expression of CD57, NKG2C and KLRG1. The NK subset expanded in the CMV-IgG ^{pos}controls (CD57 ^{pos} KLRG1 ^{neg}) displayed the most mature phenotype. Intermediate levels of maturation was observed in the CD57 ^{pos} KLRG1 ^{pos}subsets increased in CMV-AU, although these subsets differed in NKG2C expression. Notably, a significant increase in IFNg production was observed in the CD57 ^{pos} KLRG1^{pos} NKG2C^{neg}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.