Asia ARVO 2015 Report

Gillipsie Minhas

Asia ARVO 2015 meeting was held in Pacifico Yokohama, Japan from 16th to 19th February 2015. The conference theme “Evolutions in Ophthalmology: From the Study of Aging and Regenerative Medicine to Quality of Vision” was reflected in the deliberations of the meeting.

The meeting was attended by about 2500 delegates from India, China, USA, Saudi Arabia, Hong Kong, Korea, Australia, Japan, Malaysia, Philippines etc. All the sessions were well attended and were followed by good quality discussions among the faculty, research scholars and residents. Very few presentations were withdrawn or cancelled. 120 travel awards were given to young scientists from the various countries which included Gillipsie Minhas from Neuroscience Research Lab, PGIMER, Chandigarh. She was accompanied by her supervisor Akshay Anand, due to which interacting discussions could be held between the two based on ongoing research projects and ideas presented in the meeting. This report has similarly been compiled in the train journey from New Delhi to Chandigarh after discussions. A similar effort led to compilation of two research articles in the flight originating from Japan to New Delhi with inputs gained from Asia ARVO meeting.

Plenary lectures

Each plenary lecture lasted for an hour and was delivered by senior experts in the field. Among the most exciting lectures were the twin talks given by Prof Jonathan Crowston from University of Melbourne, Australia and Dr. Kazuo Tsubota from Keio University, Tokyo with each presenting interesting data on the preventive effect of exercise, happiness and abdominal breathing on glaucoma and dry eye respectively. Both the talks consisted of *in vivo* behavioural and electrophysiological experiments using innovative mouse models and transgenic animals. Another plenary lecture was focused on highlighting the role of genetic studies in complex eye disorders such as AMD. This talk presented genetic data and its application in predicting outcome, duration and bilaterality in AMD. Dr. Neeru Gupta from

Toronto argued in her plenary lecture that RGC death in glaucoma should be studied by investigating the axonal extensions into the brain. Dr. Leonard Guarente from MIT, in his plenary lecture talked about the role of sirtuins, family of proteins that link protein acetylation, metabolism and nutrition in aging and age related disorders. Dr. Takahashi from RIKEN, Japan also delivered plenary lecture on the application of iPSCs. She talked about the generation iPSC cell lines, their differentiation to RPE cells, and characterisation and quality evaluation of these cells for human transplantation. Dr. Takahashi also presented data for clinical trial of iPSC induced RPE cells in human patients and also emphasised on regulation for regenerative medicine. In Plenary session on recent research in retinal biology, Dr. Xuri Li discussed about use of PDGF as an alternative therapy to anti-VEGF for neovascularisation, tested in different animal models.

Luncheon seminars

The luncheon seminars were equally stimulating as these provided a relaxed and refreshing environment of learning, duly translated by automated translators, whenever needed. These seminars included senior investigators like Prof. Martin Friedlander, Scripps Research Institute, CA, USA, who talked about the need for better therapy for AMD in addition to anti-VEGF therapy and emergence of synergistic and combination angiostatic therapy. Another interesting luncheon seminar was given by Dr. Scheffer Tseng on the use of amniotic membrane in wound healing and its regeneration promoting effect in various disorders. One of the Japanese talks on the diagnosis and management of glaucoma. This included the cupping of lens, visual fields and OCT. The need for early treatment was especially emphasised in this talk meant for beginners.

Papers and Symposiums

Akshay Anand presented his talk on the role of bone-marrow derived CD34 positive stem cells in the NMDA injured mouse model in the symposium on retinal cell biology on the first day of the meeting. Two questions were raised during the discussion. First, whether Brn3b is resistant to NMDA induced injury and an explana-

tion for CFDA labelled stem cells reaching outer nuclear layer. In the symposium on regenerative medicine, different speakers talked about the use of corneal epithelial stem cells and the induced pluripotent stem cells (iPSCs) derived (RPE) cell transplantation in animal models of retinal degeneration. In the session on emerging trends in the field of glaucoma, Dr. Inatani delivered his talk on the role of mitochondrial movement in the retinal ganglion cells (RGC) axons, exemplified by live cell imaging, prompting us to consider similar analysis in ongoing projects. Dr. Jonathan Crowston in the same symposium emphasised the importance of lifestyle interventions, such as exercise, in management of glaucoma. In another symposium session on circadian rhythms in retina and ageing, Dr. Megumi Hatori delivered an interesting talk on the circadian rhythms present in the retinal ganglion cells. She talked about the role of presence of melanopsin in RGC in maintaining circadian clock. Dr. Ozawa talked about the role of sirtuins in prevention of diseases during ageing through caloric restriction. Dr. Elizabeth Rakoczy from Australia talked about clinical trial of sflt1 gene therapy in wet AMD. In a different session on comparative effectiveness research in ophthalmology, Dr. Rei Goto from Kyoto University delivered a talk on discussing effectiveness of health expenditure and different factors involved. Dr. Kawasaki in the same session talked about cost effectiveness in diabetic retinopathy involving a screening program for retinopathy before diabetes for earlier diagnosis and management.

Posters

Posters were presented by the delegates from around the world. Some of the interesting posters included those that described the development of retina prosthetics for the blind, comparison of visual acuity and perimetry in scoring macular edema. Other posters described the use of blinking rate in the prediction of ocular diseases and the desirable increase in tear production through abdominal breathing.

Technology Exhibition

Various companies displayed their latest technologies in the field of imaging and surgery. These included Micron IV system

by Phoenix for animal research, live cell imaging in human retina build on the technology used in astrophysics by Imagine Eyes, 3-dimensional surgery system by Leica, visual analysis through blinking in humans by Jin Co. Ltd. Dr. Anand discussed the possibility of indigenous production of the equipment in which the owner showed interest.

Dr. Anand also interacted with the editorial board member of the IOVS journal, Dr. Justine Smith regarding the possibility of the formation of Consortium between the IOVS and Annals of Neurosciences.

Policy and Perspective

An effort was made to assemble a team of eye geneticists from Asia in order to pool sequence data for various eye disorders in the region. The President of the new society was also elected. The NIH representatives advocated the formation of DNA bank in exchange for free release of genetic report. Some of these patients can be recruited for future clinical trials. Another discussion ensued with Dr. Santa Tumminia, Associate Director from NEI in which Dr. Anand highlighted the role of quality benchmarks in such International

efforts. In another close group meeting it was ratified that a session would be exclusively devoted to peer-review system in various countries.

Nobel Laureate Plenary

The final plenary lecture was delivered by the Nobel Laureate, Prof Shinaya Yamanaka on the generation and application of iPSCs. Prof. Yamanaka talked about his research project on mouse ES cells during his post-doctoral in USA and his fascination for the stem cells. He also talked about his initiation of the work on iPSCS and establishment of Center for iPS Cell Research and Application (CiRA). He talked about the application research of iPSCs in various fields including AMD, achondroplasia, muscular dystrophy and blood transfusions.

Institutes and People visited

Dr. Anand visited the laboratory of Prof. Keiji Tanaka, the Deputy Director, RIKEN Brain Science and President, Japanese Neuroscience Society (JNS) on 18th February. They also discussed the ideas and methods for promoting collaborations between Japanese Neuroscience Society and Indian Academy of Neurosciences.

Active discussion were held with Prof. Mark from Australia, Dr. Gyan Prakash from NIH, USA, Dr. Santa Tumminia from NEI, USA, Dr. Takeshi Iwata, Dr. Masayo Takahashi from RIKEN, Dr. Megumi Hatori from Keio University, Japan, Dr. Jonathan Crowston from Australia, Dr. Rajashekhar Ganagaraju, Dr. S. Natarajan, Dr. G. Kumaramanickavel, Dr. Justine Smith and Scott Johnston.

Highlights

All the lectures and deliberations in the meeting were punctual as per the Japanese culture where each session started and finished at the designated time. Gala dinner on the 17th February displayed Japanese culture mixed with interactions over the dinner.

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Gillipsie Minhas, Akshay Anand

Neuroscience Research Lab, Post Graduate Institute of Medical Education and Research, Chandigarh, INDIA