Mahidol University
Faculty of Medicine
Ramathibodi Hospital

Department of Ophthalmology

Introduction and research highlights

- Association of HLA polymorphisms and acetaminophen-related Steven-Johnson syndrome with severe ocular complications in Thai population
- Light Microscopic Features of Preclinical Pseudoexfoliation Syndrome
- Intra-Arterial Chemotherapy for Retinoblastoma: 8-Year Experience from a Tertiary Referral Institute in Thailand

Research area I (Cornea)

Association of HLA polymorphisms and acetaminophen-related Steven-Johnson syndrome with severe ocular complications in Thai population

Background/aims To investigate the association of genetic polymorphisms of human leucocyte antigens (HLA) class I and II genes with acetaminophen-related Steven-Johnson syndrome (SJS)/toxic epidermal necrolysis (TEN) who eveloped severe ocular complications (SOC) in the Thai population.

Methods A prospective case–control study including 20 unrelated Thai acetaminophen-related SJS/TEN patients with SOC and 60 Thai healthy volunteers,recruited at three university hospitals in Bangkok,Thailand, from September 2014 to August 2019. HLA genes were analysed using PCR amplification followed by hybridisation with sequence-specific oligonucleotide (SSO) probes with bead-based typing kits. The carrier and gene frequencies of individual HLA alleles in patients were compared with those in control volunteers based on dominant assumption using Fisher's exact test.

Results Among HLA class I polymorphisms,HLA-A*33:03, HLA-B*44:03 and HLA-C*07:01 were significantly associated with acetaminophen-related SJS/ TEN and SOC with high ORs (95% CI, corrected p value;Pc) in carrier frequency of 5.4 (1.8 to 16.3, Pc=0.0274),9.0 (95% CI 2.7 to 30.4, Pc=0.0034), and 9.3 (2.8 to30.2, Pc=0.0022), respectively. There were no significant HLA class II associations with the disease after corrected for a total number of alleles tested.

Conclusion HLA-B*44:03 was strongly associated with acetaminophen-related SJS/TEN patients who developed SOC in Thai population. In addition, we also found moderate to strong associations with HLA-A*33:03 and HLA-C*07:01 suggesting their potential roles in the pathogenesis of SOC in acetaminophen-related SJS/TEN.

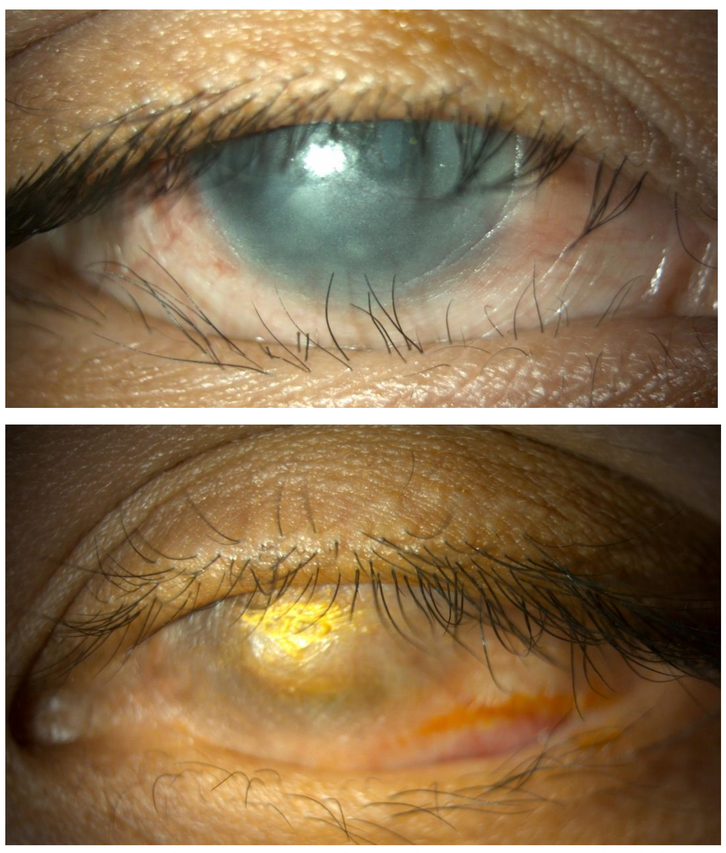

Figure1. Photographs of the anterior segment of the eyes (upper: right eye, lower: left eye) of a Thai patient with acetaminophen-related Steven-Johnson syndrome (SJS) with severe ocular complications (รูปประกอบของ Research area I)

Research area II (Glaucoma)

Light Microscopic Features of Preclinical Pseudoexfoliation Syndrome

Objective To describe light microscopic features of preclinical pseudoexfoliation syndrome

Methods Cross-sectional, observational case series enrolled consecutive patients with preclinical pseudoexfoliation syndrome:

• Pigmented spoke wheel on anterior lens capsule (Figure 2A)
• Faint central disc within photopic pupil (Figure 2B)
• Midperiphery cleft/lacunae (Figure 2C)
• White spoke pattern at midperiphery The patients undergone routine cataract surgery in Ramathibodi Hospital from March 2018 to June 2019. Light microscope (LM) was used to examine anterior lens capsule specimens, for the presence of characteristic exfoliation materials (Figure 3).

Results There were 33 patients (male 15,female 18). Mean age was 73.05±7.49 (range 56-87).

Conclusion Exfoliation materials were not found in patients with preclinical pseudoexfoliation syndrome using LM. Interestingly, nearly half of the enrolled patient had capsular delamination which represent true exfoliation syndrome.

Figure2. Slit-lamp photograph (A) Pigmented spoke wheel on the anterior lens capsule (B) Faint central disc within photopic pupil (C) Midperiphery cleft/lacunae (white arrows) (D) White spoke pattern at midperiphery (arrow heads)
(รูปประกอบของ Research area II)

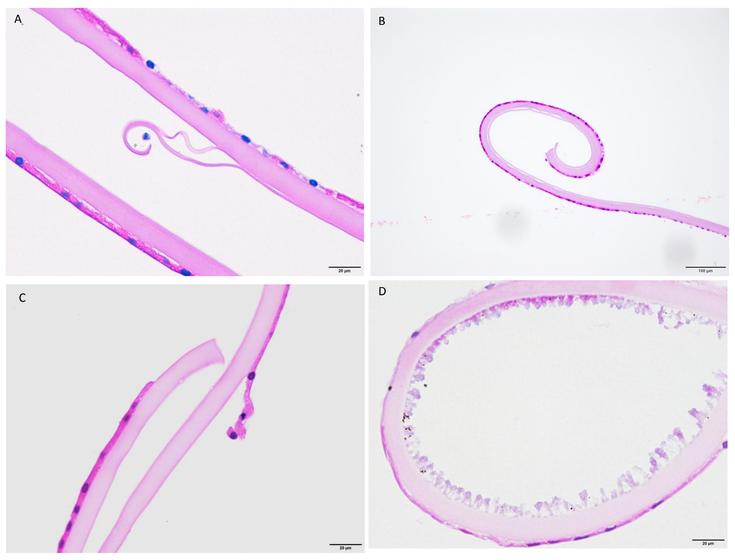

Figure3. Light micrographs, H&E stained (A) Double delamination of the anterior lens capsule (100x) (B) Incomplete delamination of the anterior lens capsule with tapered edge (10x) (C) Superficial cyst (black arrowheads) (100x) (D) Classic bush-like exfoliative materials on anterior lens capsule (100x) (รูปประกอบของ Research area II)

Research area III (Retina)

Intra-Arterial Chemotherapy for Retinoblastoma: 8-Year Experience from a Tertiary Referral Institute in Thailand

Purpose To study the safety and efficacy of intra-arterial chemotherapy (IAC) as a treatment for intraocular retinoblastoma in Thailand.

Design Retrospective, interventional case series.

Methods In this study, IAC was performed as primary or secondary treatment for patients with intraocular retinoblastoma using melphalan with or without additional topotecan or carboplatin. Survival rate, globe salvage rate, and treatment complications were recorded and analyzed.

Results Of 27 eyes of 26 patients with retinoblastoma, 7 (26%) had IAC as primary treatment and 20 (74%) had IAC as secondary treatment. The eyes were classified by International Classification of Retinoblastoma (ICRB) as group B (n = 3, 11%), group C (n = 1, 4%), group D (n = 12,44%), and group E (n = 11, 41%). Catheterization was successful in 75 (94%) of 80 sessions. The median number of IAC sessions was 3 (range,1–7). At a mean follow-up of 32 months (range, 3–95 months), the overall globe salvage rate was 52%, with 100% in groups B and C, 75%in group D, and 9% in group E. Complications of IAC included occlusivevasculopathy (n = 4, 15%), vitreous hemorrhage (n = 3, 11%), retinalartery precipitation (n = 2, 7%), strabismus (n = 2, 7%), and transientischemic attack (n = 1, 4%). The overall survival rate was 96% (n = 25).

Conclusion Our experience suggests that IAC is a safe and effective treatment for patients with ICRB group B, C, D, and some group E retinoblastoma. Careful patient selection and experienced surgeons are critical for achieving the best treatment outcome.

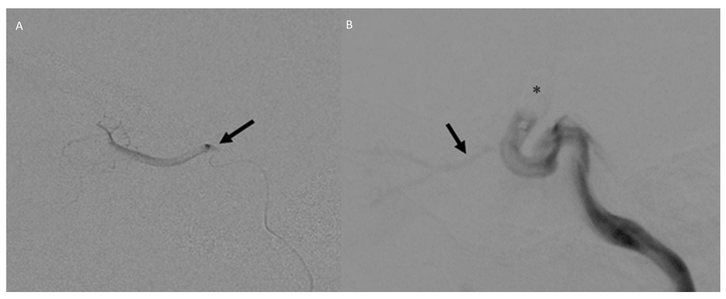

Figure4. Intra-arterial chemotherapy (IAC) techniques. A, Superselective IAC: contrast media is infused while the tip of microcatheter (arrow) is cannulated in the orifice of the ophthalmic artery. B, Selective IAC: internal carotid artery angiography is performed to confirm blood flow to the ophthalmic artery (arrow) while the balloon (asterisk) is temporarily inflated above its orifice.
(รูปประกอบของ Research area III)

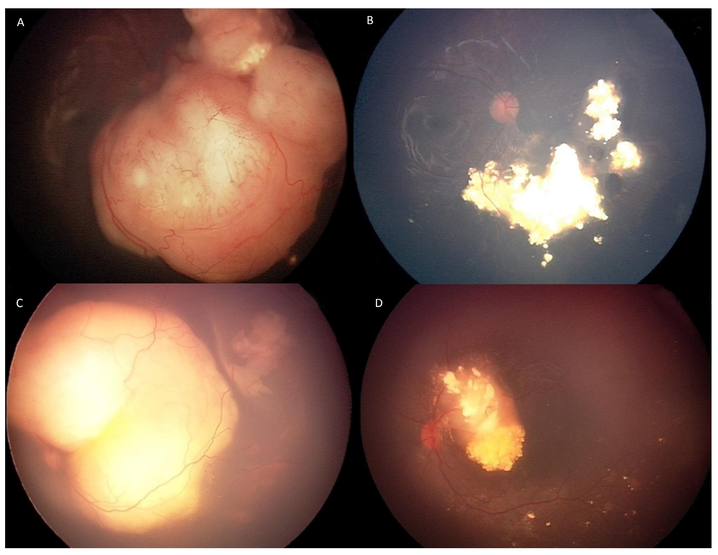

Figure5. Tumor response following IAC for intraocular retinoblastoma. A, A 12-month-old boy with ICRB group D retinoblastoma in the right eye. B,Complete tumor regression is achieved after 3 sessions of primary IAC with melphalan. C, An 8-month-old girl with ICRB group D retinoblastoma in the left eye. D, Complete tumor regression is achieved after 2 sessions of primary IAC with melphalan. IAC indicates intra-arterial chemotherapy; ICRB, International Classification of Retinoblastoma. (รูปประกอบของ Research area III)

Contact

รองศาสตราจารย์ แพทย์หญิงเกวลิน เลขานนท์
ภาควิชาจักษุวิทยา คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี
Email: lekhanont@yahoo.com
Phone:02-2012729