References

- 1 Kang NH, Kim YT. Change in subfoveal choroidal thickness in central serous chorioretinopathy following spontaneous resolution and low-fluence photodynamic therapy. *Eye* 2013; **27**: 387–391.
- 2 Tan CS, Ouyang Y, Ruiz H, Sadda SR. Diurnal variation of choroidal thickness in normal, healthy subjects measured by spectral domain optical coherence tomography. *Invest Ophthalmol Vis Sci* 2012; **53**: 261–266.
- 3 Usui S, Ikuno Y, Akiba M, Maruko I, Sekiryu T, Nishida K *et al*. Circadian changes in subfoveal choroidal thickness and the relationship with circulatory factors in healthy subjects. *Invest Ophthalmol Vis Sci* 2012; **53**: 2300–2307.
- 4 Shin JW, Shin YU, Lee BR. Choroidal thickness and volume mapping by a six radial scan protocol on spectral-domain optical coherence tomography. *Ophthalmology* 2012; **119**: 1017–1023.
- 5 Tan CS, Li KZ, Chew MC, Sadda SR. Re: Choroid is thinner in inferior region of optic disks of normal eyes. *Retina* 2012; **32**: 1996.

CSH Tan^{1,2}, KX Cheong¹ and SR Sadda³

¹Department of Ophthalmology, Tan Tock Seng Hospital, Singapore

²Fundus Image Reading Center, National Healthcare Group Eye Institute, Singapore

³Doheny Eye Institute, University of Southern California, Los Angeles, CA, USA
E-mail: Colintan_eye@yahoo.com.sg

Eye (2013) **27**, 1221–1222; doi:10.1038/eye.2013.164;
published online 2 August 2013

Sir, Reply to 'Change in subfoveal choroidal thickness in central serous chorioretinopathy'

Thank you for your constructive comments.¹ As you pointed out, the number of changes in choroidal thickness was not large, especially in eyes with spontaneously resolved central serous chorioretinopathy (CSC). In eyes with spontaneous resolution of CSC in our previous report, subfoveal choroidal thickness was $459.16 \pm 77.50 \mu\text{m}$ at baseline and decreased to $419.31 \pm 54.49 \mu\text{m}$ after spontaneous resolution; the difference was $\sim 40 \mu\text{m}$. In eyes treated with photodynamic therapy, choroidal thickness was also reduced from 416.43 ± 74.01 to $349.50 \pm 88.99 \mu\text{m}$; the difference was $\sim 70 \mu\text{m}$.² As we described in the Discussion section, diurnal variation may have been an issue, especially when the difference was not large. Previous reports have described diurnal variations of 33.7 and 33.0 μm .^{3,4}

However, diurnal variation indicates a mean maximum–minimum difference in a day, not a casual change in a day. I admit that diurnal variation may result in bias; however, if the difference exceeds the amount of known diurnal variation, I believe that the difference would be meaningful.

I reviewed the OCT image data regarding the examination time and explored the incidence, which

Table 1 Time difference between examination at baseline and after resolution of CSC

	Difference		P*
	<3 h	>3 h	
Spontaneous-resolution group	10 (62.5%)	6 (37.5%)	0.729
Low-fluence PDT group	14 (70.0%)	6 (30.0%)	

*P-value was calculated by Fisher's exact test.

exceeded 3 h between examination at baseline and after resolution. For example, if a patient underwent OCT at 9:00 hours on 1 June and 11:00 hours on 15 July, the time difference was regarded as 2 h. There were no noticeable differences between the two groups ($P = 0.729$; Table 1). Changes in choroidal thickness in each group were also compared. The Mann–Whitney *U*-test revealed no significant differences between the <3 h group and >3 h group in both spontaneous resolution and low-fluence PDT ($P = 0.174$ and 0.207 , respectively). Based on these results, I concluded that diurnal variation did not create substantial bias in the study, although the possibility did exist.

Based on another suggestion, we also usually adopt the eye-tracking feature of the Spectralis OCT (Heidelberg Engineering, Heidelberg, Germany) when performing successive OCT scans at each visit. I agree with your concern that even a minor change in the OCT scan may cause differences in choroidal thickness measurements.

Conflict of interest

The author declares no conflict of interest.

References

- 1 Tan CSH, Cheong KX, Sadda SR. Change in subfoveal choroidal thickness in central serous chorioretinopathy. *Eye* 2013; **27**(10): 1221–1222.
- 2 Kang NH, Kim YT. Change in subfoveal choroidal thickness in central serous chorioretinopathy following spontaneous resolution and low fluence photodynamic therapy. *Eye* 2013; **27**: 387–391.
- 3 Tan CS, Ouyang Y, Ruiz H, Sadda SR. Diurnal variation of choroidal thickness in normal, healthy subjects measured by spectral domain optical coherence tomography. *Invest Ophthalmol Vis Sci* 2012; **53**: 261–266.
- 4 Usui S, Ikuno Y, Akiba M, Maruko I, Sekiryu T, Nishida K *et al*. Circadian changes in subfoveal choroidal thickness and the relationship with circulatory factors in healthy subjects. *Invest Ophthalmol Vis Sci* 2012; **53**: 2300–2307.

YT Kim

Department of Ophthalmology, Ewha Womans University, School of Medicine, Seoul, Republic of Korea
E-mail: jjongofhim@hanmail.net

Eye (2013) **27**, 1222; doi:10.1038/eye.2013.165; published online 2 August 2013