



LASIK

Orbscan

18,19

Pearson

결 과

Orbscan	18	13	5
	49.5		1~9
( 3.5 )		6	5
대상과 방법	4	1	1
2004 2005	1	10	8

2004 2005

1

(Topcon SP-2000P; Topcon Corporation, Tokyo, Japan), Orbscan IIz (Orbtek, Bausch & Lomb Rochester, USA), (AL-2000; Tomey, Erlangen, Germany)

3

low

flash intensity

550.7±63.3 μm

548.2±72.5 μm, Orbscan

472.5±151.7 μm (Table 1).

(p=0.53).

Orbscan 4 (22.2%)

2 (11.1%) Orbscan

27%, 33%

Orbscan IIz acoustic equivalent (0.92)

1.15±0.72

%, 0.87±0.61 % (Table 2).

3

paired T-test (coefficient of variation;

Pearson (r) -0.67 (p=0.002)

(r) -0.68 (p=0.002)

Central corneal thickness measured with specular microscopy and ultrasound pachymetry 1 month after penetrating keratoplasty

Instruments	Corneal thickness	
	Mean±SD* (mm)	Range (mm)
Specular microscopy	550.7±63.3	447.7-696.3
Ultrasound pachymetry	548.2±72.5	444.0-728.7
Orbscan IIz	472.5±151.7	148.0-671.0

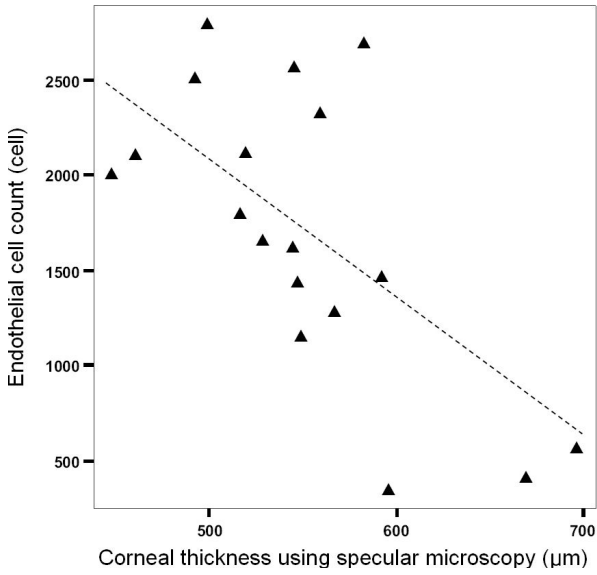
\* SD: standard deviation.

Coefficient of variation measured with specular microscopy and ultrasound pachymetry 1 month after penetrating keratoplasty

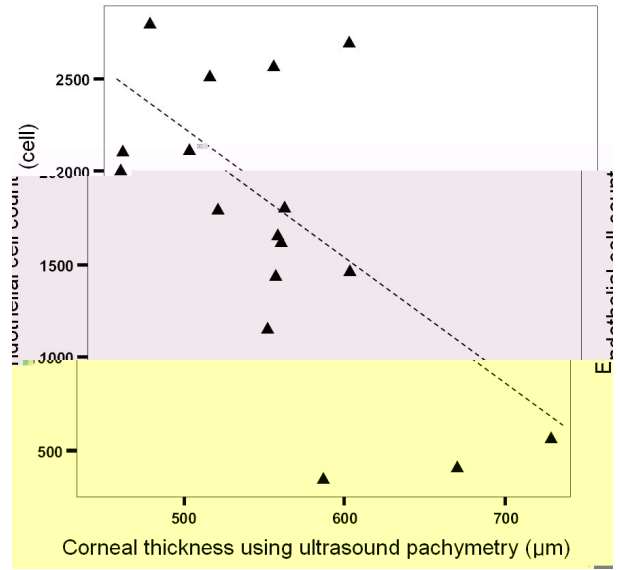
Instruments	Coefficient of variation*	
	Mean±SD†(%)	Range (%)
Specular microscopy	1.15±0.72	0.21-2.65
Ultrasound pachymetry	0.87±0.61	0.00-2.08

\* Coefficient of variation: standard deviation / average×100.

† SD: standard deviation.



Correlation between endothelial cell count and central corneal thickness measured with specular microscopy. (r=-0.67, p=0.002)



Correlation between endothelial cell count and central corneal thickness measured with ultrasound pachymetry. (r=-0.68, p=0.002)

(Fig. 1, 2).

고찰

et al<sup>17</sup> , Bovelle  
Topcon SP- 2000P

31.6 μm , Modis et  
al<sup>20</sup> Jung et al<sup>21</sup> 28 μm, 14.4 μm  
Yaylali et al<sup>22</sup>

Orbscan  
23 28 μm  
Kang et al<sup>23</sup> 24 μm

et al<sup>26</sup> Orbscan<sup>23</sup> Boscia

Orbscan

18 4 (22.2%)  
2

Orbscan  
Orbscan

<sup>27,28</sup>

Orbscan

Modis et al<sup>20</sup>

Bovelle et al<sup>17</sup>

<sup>24,25</sup>

Orbscan

0.87%

1%

1.15%,

1%

29

( $p < 0.01$ ). Pearson (r)

0.67, -0.68

Orbscan

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=ABSTRACT=

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To compare the accuracy and reproducibility of central corneal thickness measured by non-contact specular microscopy, ultrasound pachymetry, and Orbscan in the post-penetrating keratoplasty eyes.

Central corneal thickness was prospectively measured in eyes that had received penetrating keratoplasty at least 1 month before. One experienced technician measured all eyes using three methods; non-contact specular microscopy (Topcon SP-2000P; Topcon Corporation, Tokyo, Japan), Orbscan IIz (Orbtek; Bausch & Lomb, Rochester, USA), and ultrasound pachymetry (AL-2000; Tomey, Erlangen, Germany). Three consecutive measurements were performed using each method and the mean values and coefficient of variation were compared.

The mean values of central corneal thickness were  $550.7 \pm 63.3 \mu\text{m}$  with specular microscopy,  $548.2 \pm 72.5 \mu\text{m}$  with ultrasound pachymetry, and  $472.5 \pm 151.7 \mu\text{m}$  with Orbscan. There was no significant difference between the measurements obtained by specular microscopy and ultrasound pachymetry ( $p=0.53$ ), and both methods showed high reproducibility. The corneal thickness measured by Orbscan was remarkably variable and in some patients, Orbscan was unable to measure corneal thickness.

Non-contact specular microscopy appears to be an effective technique, potentially replacing ultrasound pachymetry for measuring central corneal thickness in the post-penetrating keratoplasty eyes.

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Corneal thickness, Keratoplasty, Orbscan, Pachymetry, Specular microscopy

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