Oct Heidelberg

Heidelberg Engineering Leads Group of Six Instruments in Intersession Repeatability

Vista, California and Heidelberg, Germany- May 8, 2009 - OCT measurement of retinal thickness showed reproducibility of 1 micron in a new study with a head-to-head comparison of six commercial OCT devices.
The SPECTRALIS® spectral-domain OCT device from Heidelberg Engineering showed the lowest co-efficient of variation in the test-retest study.
The authors concluded that each instrument measures differently, and that the measurements cannot be used interchangeably.
The study by Ute Wolf-Schnurrbusch, MD, et al, University of Bern, was published online in February 2009 [Epub ahead of print] and is slated for publication in Investigative Ophthalmology and Visual Science (IOVS).
The purpose of the study was to compare central retinal thickness (CRT) measurements in healthy eyes by different commercially available OCT instruments and to compare the intersession reproducibility of such measurements.
The method used was to measure central retinal thickness (CRT) in twenty subjects with healthy eyes using six different, commercially available OCT instruments and to assess the intersession reproducibility of these measurements.
Instruments tested in the study were: the StratusTM OCT, SOCT Copernicus, Spectral OCT/SLO, RTVue-100, SPECTRALIS® HRA+OCT, and CirrusTM HD-OCT.
According to Dr. Wolf-Schnurrbusch the lead investigator of the study, *"The high repeatability of the SPECTRALIS® HRA+OCT measurements is most likely related to the unique feature of the system that allows eye tracking during the scanning process (TruTrackTM Active Eye Tracking) and automatic recognition of the exact same scan location for follow-up examination (AutoRescanTM).*
By using this feature for all follow-up scans with the SPECTRALIS® HRA+OCT we could minimize extrinsic factors, such as patient fixation and the operator's ability to consistently place the macular grid over the same points during each scan."
In the study data, central retinal thickness measurements differed significantly between the different OCT instruments, with the SPECTRALIS® HRA+OCT and CirrusTM HD-OCT showing significantly higher values than all other instruments and the StratusTM OCT showing the lowest values.
This is due in part to different methods of segmentation of the retinal borders used by the various systems.
In the study the only instrument with a Coefficient of Variation below 1.0 was the SPECTRALIS® system.
The SPECTRALIS® was also the only system with a Smallest Measurable Change of less than 2 microns.
The data suggest that the different OCT systems should not be used interchangeably in follow-up examinations for the measurement of macular thickness.
"All of the newer spectral-domain OCT devices have higher resolution images than time-domain OCT, however, faster scanning speeds and higher resolution do not automatically translate to consistent reproducibility as was shown in this study," noted Carole McCallum, marketing manager at Heidelberg Engineering.

"The ability to minimize motion artifact and reliably re-scan in the same location, however, can lead to improved reproducibility".
For more information, call Heidelberg Engineering at (800) 931-2230.

Device	Manufacturer	Central Retinal Thickness	Coefficient of Variation	Smallest Measurable Change*
SPECTRALIS®	Heidelberg Engineering, Inc.	289	0.46%	**1µm**
OCT SLO	Opko/OTI, Inc	244	2.23%	**5µm**
RTVue	Optovue Corporation	247	2.77%	**7µm**
Stratus	Carl Zeiss Meditec, Inc.	212	3.33%	**7µm**
Cirrus	Carl Zeiss Meditec, Inc.	277	3.09%	**9µm**
Copernicus	Reichert/Optopol Technology Inc.	249	3.50%	**9µm**

* Smallest Measurable Change is Central Retinal Thickness multiplied by Coefficient of Variation.
Results rounded to nearest micron.

About Heidelberg Engineering GmbH

Headquartered in Heidelberg, Germany, this privately-held company is a leader in light-based medical devices for ophthalmic applications. The company designs, manufactures and markets a variety of instruments that aid in the diagnosis and management of anterior and posterior disease of the eye. U.S. corporate office is located in Vista, California.

SPECTRALIS® Models

HEIDELBERG ENGINEERING

		OCT 2-Mode	OCT *with BluePeak* 3-Mode	OCT^{PLUS} 2-Mode	OCT^{PLUS} *with BluePeak* 3-Mode	HRA 5-Mode	FA+OCT 5-Mode	HRA+OCT 6-Mode
Spectral-Domain OCT		■	■	■	■		■	■
Fundus Imaging Modes	Infrared Imaging	■	■	■	■	■	■	■
	BluePeak™ *blue laser autofluorescence*		■		■	■	■	■
	Red-free Imaging					■	■	■
	Fluorescein Angiography					■	■	■
	ICG Angiography					■		■
Panning Camera				■	■	■	■	■
Upgradable Hardware				■	■	■	■	■

TruTrack™ Active Eye Tracking • Heidelberg Noise Reduction™ • HEYEX™ Image Management Software