Background: Evaluation of central and peripheral corneal thickness is of great clinical importance in the ophthalmology. The main aim of this study is to evaluate the optical and ultrasound pachymetric measurements by comparing the central corneal thickness measurements obtained by the (SP 3000 pachymeter from TOMEY) and Allegro Oculyzer (pentacam) pachymeter.

Patients and methods: 28 patients attending the photorefractive surgery unit at IBSAR LASIK center in ALnajaf were collected. The patients were grouped into three major groups according to the refractive errors they got and the central corneal thickness for each patient was measured by two methods: 1. using the Allegro Oculyzer (pentacam) as a non contact optical pachymeter. 2. using the ultrasonic pachymeter SP 3000 pachymeter from TOMEY. All measurements were done by the same surgeon.

Results: The findings of this study reported that the ultrasound pachymeter significantly overestimates the corneal thickness by about 2.85 micron and the eyes with refractive errors ranging from 0 to -6D in our study have higher optical central corneal thickness values than ultrasonic values but the differences were statistically non significant.

Conclusion: Ultrasound pachymetry overestimates the corneal thickness measurements compared to optical pachymetry and they should not be used interchangeably during sequential checking of this ocular parameter.