

Association of Thickness And Prolapse of Mitral Valve And Keratoconus

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Purpose

- Keratoconus (KCN) mostly bilateral, is an idiopathic, progressive, non-inflammatory thinning of central cornea that usually manifests at puberty. Its prevalence is 50–230 per 100.000.
- In the pathogenesis of KCN miscellaneous abnormalities have been proposed to play a role²,
- consisting of ;
- increased levels of lysosomal enzymes in the corneal and conjunctival epithelium,
- decreased collagen type VI,

- increased levels of keratan sulfate and defects in corneal collagen fiber synthesis or structure⁷
- augmentation in activation or expression of lytic enzymes or diminished levels of their inhibitors,⁷
- fragmentation of scleral collagen fibers and increased oxylatan a type of elastic fiber which stain with antibodies against collagen type VI.

- Mitral valve prolapse (MVP) is also representative of collagen disorder that is either degenerative or inherited. Increased thickness of mitral valves (MVT) is mainly a conclusion of myxomatous degeneration due to increased proteoglycan due to cleavage of collagen, elastin, fibrillin by matrix metalloproteinases.
- We aimed to evaluate the topographic features of subjects with keratoconus and their association with MVP and MVT.

Methods

- Echocardiography was consecutively performed following a corneal topographic and slit-lamp examination in patients with diagnosis of keratoconus.
- Presence of MVP and thickness of mitral anterior leaflet measured in all patients. Central corneal thickness of right eye (CCTOD) and central corneal thickness of left eye (CCTOS) were compared among groups designed as normal and MVP or MVT <5 mm and ≥ 5 mm.
- Statistical analysis were done by Independent Samples t test using SPSS 11 for Windows.

Results

- Demographic features (age, weight and height) were not different among groups. CCTOD (466.88 ± 67.63 vs 455.58 ± 33.60 , $p=0.590$) and CCTOS (478.08 ± 61.94 vs 464.83 ± 43.47 $p=0.513$) were reduced in patients with keratoconus and also MVP.
- Additionally CCTOD (471.85 ± 63.84 vs 453.05 ± 51.55 , $p=0.337$) and CCTOS (475.68 ± 47.91 vs 471.41 ± 65.65 , $p=0.337$) were reduced in patients with keratoconus and MVT ≥ 5 mm.

Group Statistics

	Normal (n=25)	MVP (n=12)	p<0,05
Age	23.92±3.9	25.58±4.6	0.262
CCTOD	466.88±67.63	455.58±33.60	0.590
CCTOS	478.08±61.94	464.83±43.47	0.513

Group Statistics

	MV <5 mm (n=20)	MV ≥5 mm (n=17)	p<0,05
Age	23.75±4.3	25.29±3.9	0.268
CCTOD	471.85±63.84	453.05±51.55	0.337
CCTOS	475.68±47.91	471.41±65.65	0.824

Conclusion

- Although the results were not statistically significant we may suggest that degenerative process throughout the myxomatous degeneration and prolapse of mitral valve were associated with reduced CCTOD and CCTOS in patients with keratoconus.
- Both diseases are probably the different representative scenes of a shared degenerative process of collagen and fibrillin due to various matrix metalloproteinases and cathepsins, etc. which were recently documented to be mainly accounted for such matrix degenerations.

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