

Growth differentiation factor 15 (GDF15) and fibroblast growth factor 21 (FGF21): novel biomarkers for mitochondrial diseases.

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Nothing to declare

Introduction

Multiple organ dysfunction occurs in Mitochondrial diseases (MDs). MDs are sometimes difficult to diagnose, because patients have solitary and/or combination of various symptoms seizure, myopathy, heart failure and diabetes. Since plasma levels of lactate and pyruvate are not always the perfect biomarker for MDs, there are many pseudo-mitochondrial patients who are suspect for MDs. To minimize the number of specimens from such pseudo-mitochondrial patients is very important issue for diagnostic center. In 2011, Serum fibroblast growth factor 21 (sFGF21) was launched as a biomarker to diagnose muscle-featured MDs¹. Owing to this, it is now possible to differentiate MDs from similar other diseases using sFGF21.

Purpose

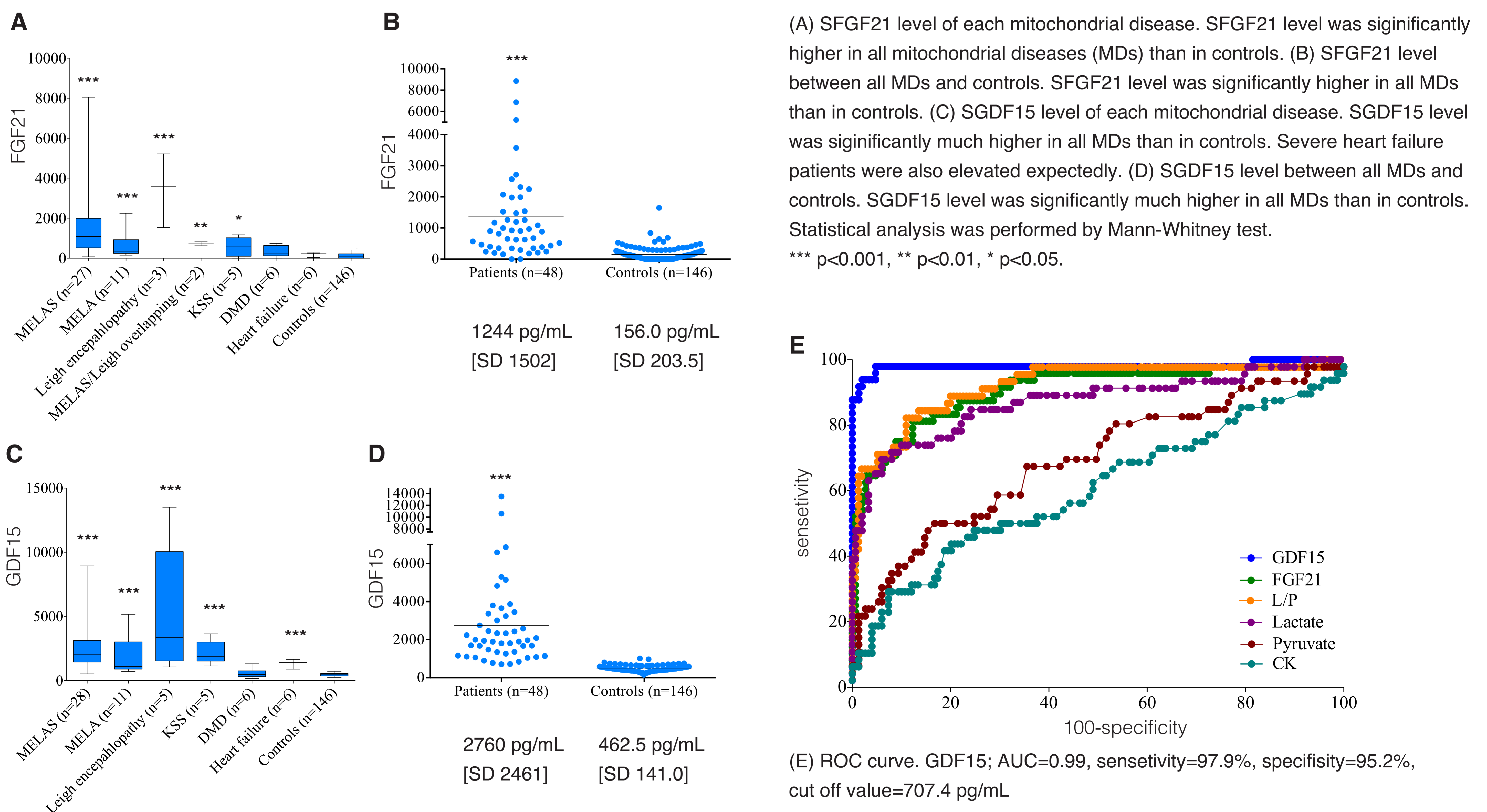
We investigated whether serum growth differentiation factor 15 (sGDF15) can be a more specific biomarker for MDs.

Methods

Blood was extracted from 48 MDs patients, 146 controls, 6 Duchenne muscular dystrophy (DMD), and 8 severe heart failure (HF) patients as disease controls. SFGF21 and sGDF15 was measured using ELISA (Biovendor, Czech and R&D systems, USA). Statistical analysis was performed in Mann-Whitney test, Kruskal Wallis test, and ROC curve analysis using SAS ver.3.3 (SAS institute Inc., USA).

	MDs	DMD	HF	Control
n (M:F)	48(23:25)	6(6:0)	8(6:2)	146(70:76)
Age (y)	33.6±18.7	14.5±6.6	47.5±11.5	23.3±13.7
Min (y)	0	8	27	1
Max (y)	76	24	59	50

Results



Conclusion

We investigate that sGDF15 is the new and useful biomarker for MDs, which is more advantage for diagnostic tool than that in sFGF21.

References

1. Suomalainen A, Elo JM, Pietilainen KH, et al. FGF-21 as a biomarker for muscle-manifesting mitochondrial respiratory chain deficiencies: a diagnostic study. *Lancet Neurol* 2011.

(This study is in submitting)