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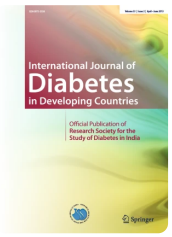
Appendix I



International Journal of Diabetes in Developing Countries

Incorporating Diabetes Bulletin

Publishing model

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Overview

International Journal of Diabetes in Developing Countries is a peer-reviewed journal focusing on the full spectrum of contemporary clinical and basic sciences related to diabetes.

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- Submissions are sourced globally, particularly from countries affected by the diabetes epidemic.
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All published materials support their claims with transparent data and comply with ethical standards.

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5 year impact factor
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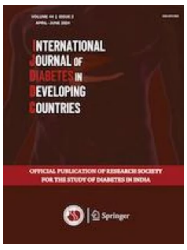

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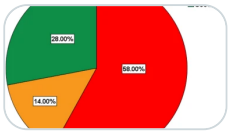

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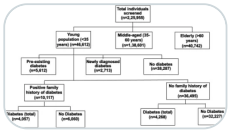

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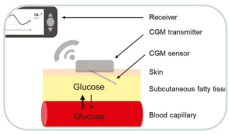

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SNPs in the *catalase* promoter: a study based on Indian diabetic individuals

Original Article Published: 11 March 2022

Volume 43, pages 155–162, (2023) Cite this article

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Aims and scope

Submit manuscript

Dipak A. Kadam, Saurabh D. Kalamkar, Amit Saraf, Imran Pathan, Jhankar Acharya, Komal Pekhale, Yogesh Shouche, Kavita Lole, Saroj Ghaskadbi & Richa Ashma

Abstract

Background

It is known that anti-oxidant defense is compromised in diabetic individuals. In our study, we indeed found decreased catalase activity in diabetic individuals compared to non-diabetic controls. Therefore, we analyzed the single nucleotide polymorphisms (SNPs) in the promoter region of catalase in diabetic individuals. To investigate catalase promoter SNP's contribution (if any) to the low catalase activity and assess their functional significance by reporter assay.

Methods

The activity of catalase was quantitated from 109 non-diabetic and 138 diabetic individuals. Genomic DNA isolated from these individuals was screened for SNPs in the *catalase* promoter by direct sequence analysis of PCR products. The functional effect of these polymorphisms was checked by reporter assay.

Results

We found six reported SNPs of which, three were polymorphic in our study groups at −330, −89, and −20 position viz. rs1001179: C>T, rs7943316: A>T, and rs1049982: T>C. Out of the three SNPs, only rs1001179: C>T showed a positive association with the occurrence of low activity of catalase in diabetic individuals ($p<0.05$). However, reporter assay confirmed that the presence of these SNPs does not significantly affect the transcriptional activity of the gene ($p>0.05$). Furthermore, our in silico analysis revealed that the presence of these SNPs did not significantly affect the binding of transcription factors except at −330 position.

Conclusion

Our reporter assay suggesting no functional relevance of promoter SNPs in reduced catalase activity observed in Indian diabetic individuals is a novel finding.

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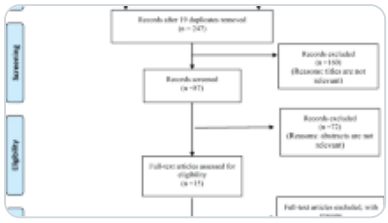

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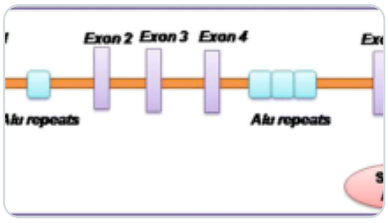

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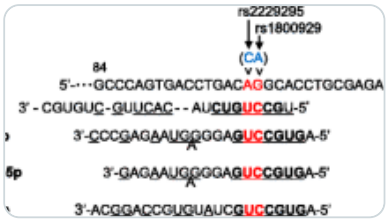

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Data availability

The data that supports the findings of this study are available in Appendix, table-1 of this article.

References

1. Finkel T. Signal transduction by reactive oxygen species. J Cell Biol. 2011;194:7–15.

Article CAS PubMed PubMed Central Google Scholar

2. Trachootham D, Alexandre J, Huang P. Targeting cancer cells by ROS-mediated mechanisms: a radical therapeutic approach? Nature Reviews Drug Discovery. Nat Publ Group. 2009;8:579–91.

CAS Google Scholar

3. Dalleau S, Baradat M, Guéraud F, Huc L. Cell death and diseases related to oxidative stress:4-hydroxynonenal (HNE) in the balance. Cell Death Differ. 2013;20:1615–30.

Article CAS PubMed PubMed Central Google Scholar

4. Giacco F, Brownlee M. Oxidative stress and diabetic complications. Circ Res. 2010;107:1058–70.

Article CAS PubMed PubMed Central Google Scholar

5. Modak MA, Parab PB, Ghaskadbi SS. Pancreatic islets are very poor in rectifying oxidative DNA damage. Pancreas. 2009;38:23–9.

Article CAS PubMed Google Scholar

6. Brownlee M. The pathobiology of diabetic complications: a unifying mechanism. Diabetes. 2005;54:1615–25.

Article CAS PubMed Google Scholar

7. Lenzen S. Oxidative stress: the vulnerable beta-cell. Biochemical Society transactions England. 2008;36:343–7.

Article CAS Google Scholar

8. Acharya JD, Pande AJ, Joshi SM, Yajnik CS, Ghaskadbi SS. Treatment of hyperglycaemia in newly diagnosed diabetic patients is associated with a reduction in oxidative stress and improvement in β-cell function. Diabetes/metabolism research and reviews. 2014. p. 590–8, Treatment of hyperglycaemia in newly diagnosed diabetic patients is associated with a reduction in oxidative stress and improvement inβ-cell function.

9. Ahn J, Nowell S, McCann SE, Yu J, Carter L, Lang NP, Kadlubar FF, Ratnasinghe LD, Ambrosone CB. Associations between catalase phenotype and genotype: modification

by epidemiologic factors. Cancer Epidemiol Biomark Prev. 2006;15:1217–22.

Article CAS Google Scholar

10. Flekac M, Skrha J, Hilgertova J, Lacinova Z, Jarolimkova M. Gene polymorphisms of superoxide dismutases and catalase in diabetes mellitus. BMC Med Genet. 2008;9:1–9.

Article Google Scholar

11. Polonikov AV, Ivanov VP, Solodilova MA, Kozhuhov MA, Panfilov VI. Tobacco smoking, fruit and vegetable intake modify association between -21a> t polymorphism of catalase gene and risk of bronchial asthma. J Asthma. 2009;46:217–24.

Article CAS PubMed Google Scholar

12. Liu L, Li C, Gao J, Li K, Zhang R, Wang G, et al. Promoter variant in the catalase gene is associated with vitiligo in Chinese people. Journal of Investigative Dermatology. Elsevier Masson SAS. 2010;130:2647–53.

CAS Google Scholar

13. Aebi H. Catalase in vitro. Methods Enzymol. 1984;105:121–6.

Article CAS PubMed Google Scholar

14. Dong L, Lv LB, Lai R. Molecular cloning a laboratory manual. Dong wu xue yan jiu = Zoological research / "Dong wu xue yan jiu" bian ji wei yuan hui bian ji. 2012.

15. Untergasser A, Cutcutache I, Koressaar T, Ye J, Faircloth BC, Remm M, Rozen SG. Primer3-new capabilities and interfaces. Nucleic Acids Res. 2012;40:1–12.

Article Google Scholar

16. Koressaar T, Remm M. Enhancements and modifications of primer design program Primer3. Bioinformatics. 2007;23:1289–91.

Article CAS PubMed Google Scholar

17. Jakobsson M, Edge MD, Rosenberg NA. The relationship between FST and the frequency of the most frequent allele. Genetics. 2013;193:515–28.

Article PubMed PubMed Central Google Scholar

18. Lewontin RC. The detection of linkage disequilibrium in molecular sequence data. Genetics. 1995;140:377–88.

Article CAS PubMed PubMed Central Google Scholar

19. Lewis CM. Genetic association studies: design, analysis and interpretation. Brief Bioinform. 2002;3:146–53.

Article CAS PubMed Google Scholar

20. Thomas-Chollier M, Hufton A, Heinig M, O'Keeffe S, El Masri N, Roider HG, et al. Transcription factor binding predictions using TRAP for the analysis of ChIP-seq data and regulatory SNPs. Nature Protocols Nature Publishing Group. 2011;6:1860–9.

Article CAS Google Scholar

21. Nebbioso M, Lambiase A, Armentano M, Tucciarone G, Sacchetti M, Greco A, Alisi L. Diabetic retinopathy, oxidative stress, and sirtuins: an in depth look in enzymatic patterns and new therapeutic horizons. Surv Ophthalmol. 2022;67:168–83.

Article PubMed Google Scholar

22. Piconi L, Quagliaro L, Ceriello A. Oxidative stress in diabetes. 2003;41:1144–1149.

23. Baynes JW. Role of oxidative stress in development of complications in diabetes. Diabetes. 1991;40:405–12.

Article CAS PubMed Google Scholar

24. Chambliss M, Ansar M, Kelley JP, Spratt H, Garofalo RP, Casola A. A polymorphism in the catalase gene promoter confers protection against severe RSV bronchiolitis Jeffrey. viruses. 2020;2:1–9.

Google Scholar

25. Liu Y, Xie L, Zhao J, Huang X, Song L, Luo J, et al. Association between catalase gene polymorphisms and risk of chronic hepatitis B, hepatitis B virus-related liver cirrhosis and hepatocellular carcinoma in Guangxi population. Medicine (United States). 2015;94:1–8.

Google Scholar

26. Castaldo SA, da Silva AP, Matos A, Inácio Â, Bicho M, Medeiros R, Alho I, Bicho MC. The role of CYBA (p22phox) and catalase genetic polymorphisms and their possible epistatic interaction in cervical cancer. Tumor Biol. 2015;36:909–14.

Article CAS Google Scholar

27. Tefik T, Kucukgergin C, Sanli O, Oktar T, Seckin S, Ozsoy C. Manganese superoxide dismutase Ile58Thr, catalase C-262T and myeloperoxidase G-463A gene polymorphisms in patients with prostate cancer: relation to advanced and metastatic disease. BJU Int. 2013;112:E406–14.

Article CAS PubMed Google Scholar

28. Saadat M, Saadat S. Genetic polymorphism of CAT C-262 T and susceptibility to breast cancer, a case–control study and meta-analysis of the literatures. Pathol Oncol Res. 2015;21:433–7.

Article CAS PubMed Google Scholar

29. Chistiakov DA, Zotova EV, Savost'anov KV, Bursa TR, Galeev IV, Strokov IA, et al. The 262T>C promoter polymorphism of the catalase gene is associated with diabetic neuropathy in type 1 diabetic Russian patients. Diabetes Metab. 2006;32:63–8.

Article CAS PubMed Google Scholar

30. Góth L, Nagy T, Kósa Z, Fejes Z, Bhattoa HP, Paragh G, Káplár M. Effects of rs769217 and rs1001179 polymorphisms of catalase gene on blood catalase, carbohydrate and lipid biomarkers in diabetes mellitus. Free Radic Res. 2012;46:1249–57.

Article PubMed Google Scholar

31. Gong B, Shi Y, Qu C, Ye Z, Yin Y, Tan C, Shuai P, Li J, Guo X, Cheng Y, Yang Z, Lin Y, Liu X. Association of catalase polymorphisms with primary open-angle glaucoma in a Chinese population. Ophthalmic Genet Taylor & Francis. 2018;39:35–40.

Article CAS Google Scholar

32. Tarnai I, Csordás M, Sükei E, Shemirani AH, Káplár M, Góth L. Effect of C111T polymorphism in exon 9 of the catalase gene on blood catalase activity in different types of diabetes mellitus. Free Rad Res Taylor & Francis. 2007;41:806–11.

Article CAS Google Scholar

33. Chistiakov DA, Savost'anov KV, Turakulov RI, Titovich EV, Zilberman LI, Kuraeva TL, et al. A new type 1 diabetes susceptibility locus containing the catalase gene

(chromosome 11p13) in a Russian population. Diabetes Metab Res Rev England. 2004;20:219–24.

Article CAS Google Scholar

34. Gavalas NG, Akhtar S, Gawkrodger DJ, Watson PF, Weetman AP, Kemp EH. Analysis of allelic variants in the catalase gene in patients with the skin depigmenting disorder vitiligo. Biochem Biophys Res Commun United States. 2006;345:1586–91.

Article CAS Google Scholar

35. Kim TH, Hong JM, Oh B, Cho YS, Lee JY, Kim HL, Shin ES, Lee JE, Park EK, Kim SY. Genetic association study of polymorphisms in the catalase gene with the risk of osteonecrosis of the femoral head in the Korean population. Osteoarthr Cartil. 2008;16:1060–6.

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36. Oh B, Kim S-Y, Kim DJ, Lee JY, Lee J-K, Kimm K, Park BL, Shin HD, Kim TH, Park EK, Koh JM, Kim GS. Associations of catalase gene polymorphisms with bone mineral density and bone turnover markers in postmenopausal women. J Med Genet. 2007;44:e62.

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37. Forsberg L, Lyrenäs L, De Faire U, Morgenstern R. A common functional C-T substitution polymorphism in the promoter region of the human catalase gene influences transcription factor binding, reporter gene transcription and is correlated to blood catalase levels. Free Radic Biol Med. 2001;30:500–5.

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Dipak Kadam: formal analysis; methodology; resources; writing—review and editing. Saurabh D. Kalamkar: Resources. Amit Saraf: methodology. Imran Pathan: investigation, methodology, writing—original draft preparation. Jhankar Acharya: formal analysis; writing—review and editing. Komal Pekhale: formal analysis; methodology. Yogesh Shouche: resources. Kavita Lole: resources. Richa Ashma: conceptualization; formal

analysis; supervision; validation; writing—original draft preparation; writing—review and editing. Saroj Ghaskadbi: conceptualization; funding acquisition; supervision; validation; writing—review and editing.

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The authors declare no competing interests.

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Informed consent was obtained from all individual participants included in the study.

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