

Editorial

Morgan, Neil V.

DOI:

[10.3389/fcvm.2023.1282147](https://doi.org/10.3389/fcvm.2023.1282147)

License:

Creative Commons: Attribution (CC BY)

Document Version

Publisher's PDF, also known as Version of record

Citation for published version (Harvard):

Morgan, NV 2023, 'Editorial: Case reports in cardiovascular genetics and systems medicine: 2022', *Frontiers in cardiovascular medicine*, vol. 10, 1282147. <https://doi.org/10.3389/fcvm.2023.1282147>

[Link to publication on Research at Birmingham portal](#)

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.



OPEN ACCESS

EDITED AND REVIEWED BY
Masanori Aikawa,
Brigham and Women's Hospital and Harvard
Medical School, United States

*CORRESPONDENCE

Neil V. Morgan
✉ n.v.morgan@bham.ac.uk

RECEIVED 23 August 2023

ACCEPTED 04 September 2023

PUBLISHED 11 September 2023

CITATION

Morgan NV (2023) Editorial: Case reports in
cardiovascular genetics and systems medicine:
2022.

Front. Cardiovasc. Med. 10:1282147.

doi: 10.3389/fcvm.2023.1282147

COPYRIGHT

© 2023 Morgan. This is an open-access article
distributed under the terms of the [Creative
Commons Attribution License \(CC BY\)](#). The use,
distribution or reproduction in other forums is
permitted, provided the original author(s) and
the copyright owner(s) are credited and that the
original publication in this journal is cited, in
accordance with accepted academic practice.
No use, distribution or reproduction is
permitted which does not comply with these
terms.

Editorial: Case reports in cardiovascular genetics and systems medicine: 2022

Neil V. Morgan*

Institute of Cardiovascular Sciences, College of Medical and Dental Sciences, University of Birmingham,
Birmingham, United Kingdom

KEYWORDS

case-report, clinical cases, genetics, cardiovascular disease, rare variants, genotype-phenotype

Editorial on the Research Topic

Case reports in cardiovascular genetics and systems medicine: 2022

Case reports remain a very useful resource especially for rare genetic conditions where only a handful of reported mutations maybe reported. Indeed, it has previously been reported that case-reports, are a compendium of useful ideas for our daily activity in the context of clinical management of patients (1).

But more specifically for rarer genetic diseases, there may be situations where an additional family with a distinct mutation is needed to prove the disease gene(s) is linked to the phenotype of the specific genetic disorder. Further, the clinical work up of rare cases will allow for genotype-phenotype correlations. In situations where rare genetic variants are classed as Variants of Uncertain Significance (VUS) characterising variants for clinical action is extremely important. Internationally there are many efforts ongoing to address this such as the ClinGen Gene Curation Working Group (2). This grouping has developed a method to qualitatively define the “clinical validity” of a gene-disease relationship using a semiquantitative method to assess the clinical validity of gene-disease relationships. More recently this has been applied to a well-known cardiovascular disease, Dilated Cardiomyopathy (DCM) (3). More specifically in this study they have investigated evidence-based assessment of genes in DCM where the authors carried out a large-scale analysis of 51 genes previously associated with DCM, providing strong evidence for DCM associated genes that can be used to define and improve clinical practice and management of patients. Overall case reports may also highlight new clinical findings for a particular disease/syndrome, that have not been previously documented thus can extend the phenotypic spectrum. This can be true even for genetic diseases with mutations in the same gene, known as allelic heterogeneity.

In this latest exciting series of case reports, we illustrate the value of publishing such case reports in a range of cardiovascular genetic diseases including cardiomyopathies, tetralogy of fallot (TOF), and other rare syndromes including Ehlers Danlos syndrome. The series includes 2 case reports highlighting where specific mutations in a Cardiomyopathy can be linked to sudden cardiac death, a situation where defining the genetics can not only give a reason for this devastating outcome, but also inform genetics for future cases within the same family and allowing for accurate genetic counselling. One of these cases published by Jin et al. report a variant in the Myosin Binding Protein C3 encoding MYBPC3, which

is an apparent “silent” variant which although doesn’t change the amino acid, results in altered splicing of the transcript leading to reduced expression of the gene.

An interesting case published by Wang et al. report a family with TOF, which is the most common cyanotic congenital heart disease (CHD), but only a small number of familial TOF cases have been reported to date. Using whole exome sequencing (WES) the authors report a novel heterozygous missense variant in the *MYOM2* gene, thus expanding the spectrum of the gene variants that lead to TOF.

Two other case reports are focused on Ehlers Danlos syndrome, a rare connective tissue disorder characterised by spontaneous arterial, bowel or organ rupture. In one case Manhas et al. functionally characterise a missense variant in *COL3A1*, classifying it as pathogenic. A further case of Ehlers-Danlos syndrome was reported by Taurino et al. with complex arterial findings and death at young age identified a novel *COL3A1* variant which concludes early diagnosis could lead to treatment choices, improved management, and ultimately, better outcomes.

In summary, this series of case reports include rare genetic diseases that are important to publish and extend the phenotype-genotype correlations of this collection of rare cardiovascular diseases. They highlight the challenges and value in assigning pathogenicity of the specific genetic variant where functional characterisation is often required, in order to ultimately improve patient management and introduce personalised treatments where possible.

Author contributions

NM: Conceptualization, Data curation, Writing – original draft, Writing – review and editing.

References

1. Novoa NM. Editorial: case-reports, a compendium of useful ideas for our daily activity. *Front Surg.* (2022) 9:1026401. doi: 10.3389/fsurg.2022.1026401
2. Ramos EM, Din-Lovinescu C, Berg JS, Brooks LD, Duncanson A, Dunn M, et al. Characterizing genetic variants for clinical action. *Am J Med Genet C Semin Med Genet.* (2014) 166C(1):93–104. doi: 10.1002/ajmg.c.31386
3. Jordan E, Peterson L, Ai T, Asatryan B, Bronicki L, Brown E, et al. Evidence-based assessment of genes in dilated cardiomyopathy. *Circulation.* (2021) 144(1):7–19. doi: 10.1161/CIRCULATIONAHA.120.053033

Funding

The author declare that no financial support was received for the research, authorship, and/or publication of this article.

Acknowledgments

The author would like to thank Samantha Montague for proofreading this manuscript.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The author declared that they were an editorial board member of Frontiers, at the time of submission. This had no impact on the peer review process and the final decision.

Publisher’s note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.