RETINA AUSTRALIA 2021 RESEARCH GRANT: FINAL REPORT

Project Title: Potential Participant Perspectives in Ocular Gene Therapy in Australia
Investigators: A/Prof Heather Mack, Prof John Grigg, A/Prof Fred Chen, A/Prof Lauren Ayton

Project Synopsis

Voretigene neparvovec-rzyl (Luxturna®) was approved in 2020 by the Australian Government Therapeutic Goods Administration as a gene therapy treatment for Leber Congenital Amaurosis, a rare cause of inherited retinal disease (IRD). Previous studies have shown that individuals who might participate in gene therapy clinical trials overestimate clinical effect, and underestimate risks. Until now, there have been no published studies of the perspectives of patients who may be offered regulatory-approved gene therapy treatment for any ocular or systemic conditions (as distinct from participating in a clinical trial of gene therapy). In this study, we surveyed Australian persons with IRD, and carers, regarding their knowledge of clinical trials using a validated survey tool (PACT 22). We also developed and used a novel survey instrument to assess understanding of approved ocular gene therapy (AGT-Eye). We compared these with self-reported clinical status, information about quality of life (measured using the NEI VFQ-25, a standard instrument), and information about health status (measured using EQ-5D-5L, a standard instrument).

Results

We advertised this survey through a number of avenues, including through Retina Australia. We had an outstanding response, with 681 full responses to the survey (639 people with IRD, and 42 carers). Of these, just over half (52%) were women, and the average age was 53.5 years. Most of the respondents (92%) said that they would try gene therapy if it was available now to them or their family members for IRD. However, only 28.3% agreed that they had good knowledge of gene therapy and almost 60% of respondents did report at least one barrier to their future uptake of the treatment. Most obtained information about gene therapy from the internet (49.3%). Knowledge gaps were present regarding methods and outcomes of gene therapy. Most respondents saw economic value in treatment, with 79% agreeing that government subsidy would be an effective use of taxpayer money. A summary of the main findings is shown on the following page.

Academic Outcomes

Published peer-reviewed journal articles (copies attached):

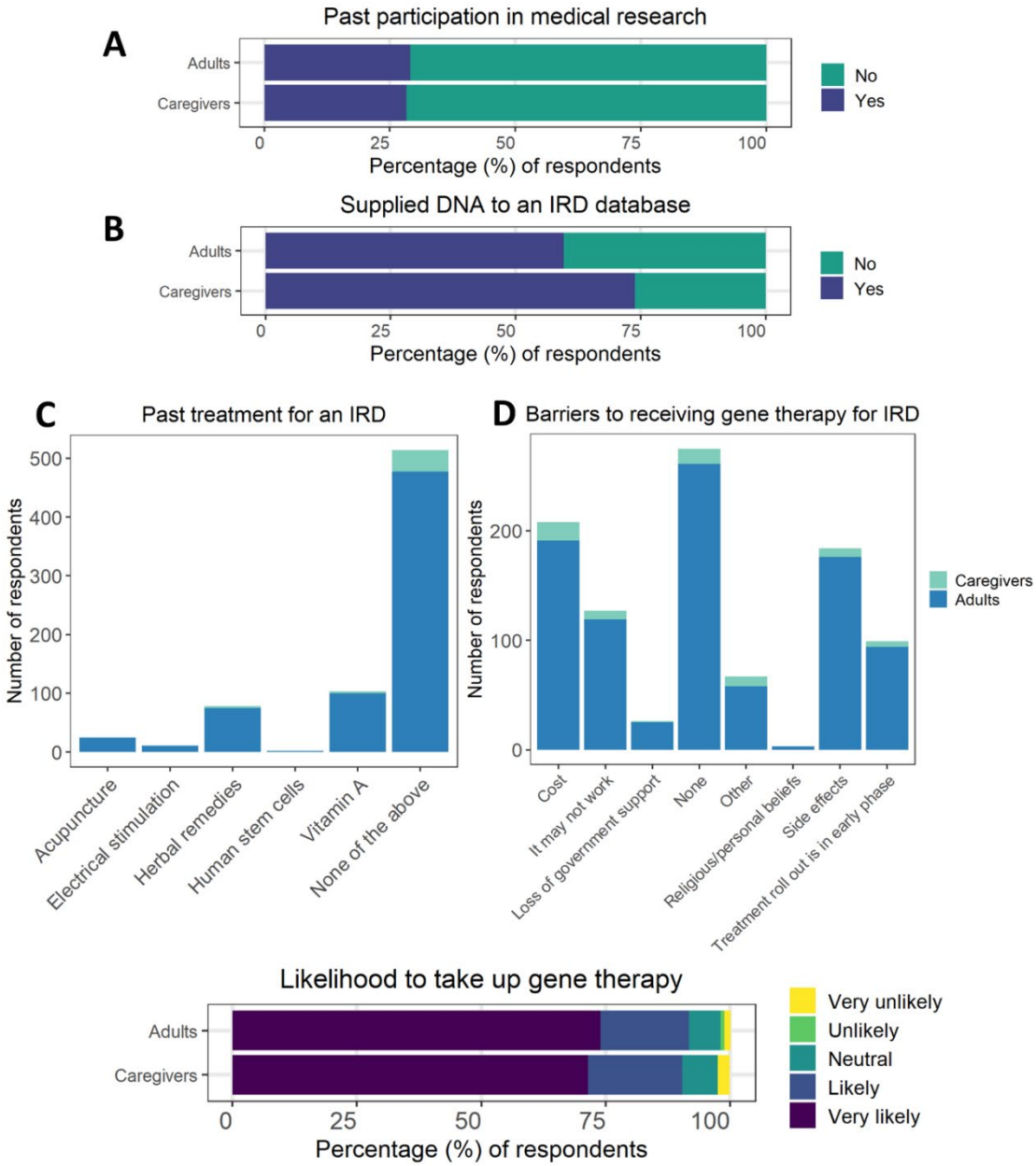
1. Mack HG, Chen FK, Grigg J, Jamieson R, de Roach J, O'Hare F, Britten-Jones AC, McGuinness MB, Tindill N, Ayton LN, for the Australian Ocular Gene Therapy consortium. Perspectives of people with inherited retinal diseases on ocular gene therapy in Australia: protocol for a national survey. *British Medical Journal Open* 2021;11(6):e048361.
2. McGuinness MB, Britten-Jones AC, Ayton LN, Finger RP, Chen FK, Grigg J, Mack HG. Measurement Properties of the Attitudes to Gene Therapy for the Eye (AGT-Eye) Instrument for People with Inherited Retinal Diseases. *Translational Vision and Science Technology* 2022;11(2):14.

Articles under review (will send when published):

1. Mack HG, Britten-Jones AC, McGuinness MB, Chen FK, Grigg J, Jamieson R, Edwards TL, De Roach J, O'Hare F, Martin KR, Ayton LN, for the Australian Ocular Gene Therapy consortium. Survey of perspectives of people with inherited retinal diseases on ocular gene therapy in Australia. *Translational Vision and Science Technology*; under review.

Conference presentations:

1. Mack HG: Invited speaker. *Gene therapy for inherited retinal disease: patient understanding*. 77th Orthoptics Australia conference, 27 February 2022
2. Mack HG: Speaker (from abstract). *Patient knowledge about ocular gene therapy*. In: Instructional course - Retinal dystrophy: Diagnosis and treatment. RANZCO 52nd Congress, 28 February 2022



Next Steps

We are now going to use this large dataset to look at the association between vision-related quality of life (measured using the NEI-VFQ-25) and the health utility scores generated by the EQ-5D-5L in people with IRD. This will form part of a Masters of Biostatistics degree (student = Yuyi Qu) from the University of Melbourne, co-supervised by statisticians from the Murdoch Children's Research Institute and CERA.

Conclusion

This study is the first comprehensive analysis of the perspectives of Australian people with IRD regarding understanding of and interest in gene therapy for retinal disease. The survey has highlighted that there are knowledge gaps in the community regarding ocular gene therapy. We have now been successful in a Universitas 21 International grant (PI: Dr Alexis Ceecee Britten-Jones) to also identify barriers and gaps within clinician education. We hope to work with Retina Australia to develop resources to address these gaps in patient and clinician knowledge. The data from this study will also be of use to health economists and in advocacy, particularly when highlighting patient perspectives to government. This survey has shown high level of interest in the IRD community for gene therapies and highlights the importance of continued research and development into new therapies for people with IRDs.