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Pauline Samia

Adam Kirton

Russell Dale

Silvia Tenembaum

Chahnez Charfi Triki

See next page for additional authors

Authors

Pauline Samia, Adam Kirton, Russell Dale, Silvia Tenembaum, Chahnez Charfi Triki, Anaita Hegde, Richard Idro, Jo M. Wilmshurst, Ingrid Tein, and Haluk Topaloğlu

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Position Statement:Emerging genetic therapies for rare disorders

Pauline Samia[1], **Adam Kirton**[2], **Russell Dale**[3], **Silvia Tenembaum**[4], **Chahnez Charfi Triki**[5],**Anaita Hegde**[6],**Richard Idro**[7],**Edward Kija**[8],**Jo M Wilmshurst**[9],**Ingrid Tein**[10],**Haluk Topaloğlu**[11]

[1]Aga Khan University, Nairobi, Kenya; [2]University of Calgary, Alberta Children's Hospital, Canada; [3]The Children's Hospital at Westmead, The University of Sydney; [4]Department of Neurology, National Paediatric Hospital Dr. J.P. Garrahan Buenos Aires; [5]Faculté de Médecine de Sfax, Université de Sfax, Sfax; [6]Jaslok Hospital and Research Centre, Mumbai; [7]Department of Pediatrics and Child Health, Makerere University College of Health Sciences; [8]Muhimbili University of Health and Allied Sciences, University of Dar es Salaam, Tanzania; [9]University of Cape Town, South Africa; [10]University of Toronto, Canada; [11]Hacettepe University School of Medicine in Ankara, Turkey.

Corresponding author: Pauline Samia; Email: pauline.samia@aku.edu

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Abstract

Emerging genetic therapies for rare disorders at high cost, cannot realistically address the global burden of disease. Stakeholders must develop new pathways to ensure safe, fair and sustainable provision of such therapies.

Kewords: rare disorders, gene therapy, position statement.

Emerging genetic therapies for rare disorders

A disease or disorder is defined as rare in Europe when it affects fewer than 1 in 2000 peopleand based on the Food and drug admistration (FDA) definition from the US, when it affects less than 200,000 at any one time. Genetic factors contribute to the etiology in 80% of those with rare diseases, and other contributing factors, including infection, account for the remaining the cases. The recent emergence of gene technologies has led to the development of therapies to treat some of the once incurable diseases. Currently, there are more than 230 gene therapy efforts such as splicing modifiers, exon skipping protocols, monoclonal antibodies, and several 'molecular plaster' studies. Increasing numbers of these therapies are being demonstrated to show benefit and are being approved by health care authorities leading to availability in the market [1][2][3][4].

However, although these discoveries have provided the real possibility of treatment and cure to previously considered untreatable and often life-limiting diseases, at this point several concerns have arisen including primarily the high cost, access to the intervention and the potential risks [5]. These are mainly based on the following independent factors. First, clinical studies are conducted on a narrowly defined group with a minimal number of cases (usually less than 200), but the therapy is expected to be applied to a more diverse population. For example, a molecule has been approved by the FDA in all types of a given rare genetic disorder, however the original study was only conducted in babies less than 6 months of age [1][6]. Secondly at this time the adverse effects portfolio in relation to these treatments is still accumulating, adequate data may not be available on chronic and late stage forms of disease, and uncertainities exist regarding long term benefits [2][3][4]. The third issue is related to cost regulation. These drugs are extremely expensive costing up to several million dollars which places governmental bodies and health care providers in a difficult position financially based upon the cumulative cost of several hundred re-imbursements every year causing a true burden on the health economy globally [5][7]. Last but not least is the issue of the expectations of families which may not match with the study end points. In other words, 'End point goals' of patients and families in terms of clinically relevant outcomes and improvements in quality of life may differ significantly from those included in study protocols

[8].

Since the 1980s there have been enormous developments in the whole gene therapy field which has led to significant expectations in the community. For the time being, these innovative therapies act as disease modifying procedures at often prohibitive costs. But even if they fall short of mitigating all functional limitations in patients or eliminating morbidities and not fulfilling in total the families' expectations, those involved in the care of affected children continue to think positively. More effective treatments may be here sooner than expected, although we are still years away from definitive treatments. The cost of these interventions will become an increasing obstacle not only for resource poor settings but also for resource-rich regions if the current trend is maintained. Going forward there needs to be careful consideration of the cost benefit ratio of these interventions given the limited amount of resources available to provide healthcare to the entire population.

The position statement of the ICNA proposes that counterparts, regulators, decision makers and other party stakeholders should work in unity to address this serious global health matter for vulnerable children and families. Characterizing these perspectives can help support decisions. High cost is a potential barrier to accessing treatment worldwide negating the possibility for impact for the majority of those afflicted.

Competing interests

The authors are not aware of any financial or non-financial competing interests which affect the content of this report.

Authors' contributions

The Position Statement was compiled by Haluk Topaloğlu and reviewed, adapted and endorsed by the ICNA Advocacy committee (Pauline Samia (chair), Adam Kirton, Russell Dale, Chahnez Charfi Triki, Anaita Hedge, Helen Cross, Edward Kija, Silvia Tenembaum, Richard Idro and ICNA officers Jo Wilmshurst and Ingrid Tein.

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