Gene Therapy: Hype Cycles & Technological Maturity

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Introduction

In the 24 years since the first gene therapy (GT) was administered to a human patient (Blaise, 1995), the gene therapy industry has advanced significantly, culminating in the approval of Glybera (UniQure) in 2012. Despite this, the clinical and commercial success originally envisioned for gene therapy is yet to be realised. This poster considers the historical development of the field, and compares it with the maturation of another paradigm shifting technology, bone marrow transplantation (BMT).

Methods

The literature was reviewed and a Gartner Hype Cycle constructed to illustrate technology development. The curve was populated with key milestones and shapes of the curves are relative to each other as dictated by patterns as described by van Lente et al. (2013). The contributing factors selected are of course illustrative rather than comprehensive.

Results

Based on a comparison with events in the field of bone marrow transplantation, analysis of the literature suggests that gene therapy is maturing as a technology and is currently on the ‘slope of enlightenment’.

Discussion

This exercise is useful in evaluating the current state of the field for progress and maturation.

The development of bone marrow transplantation faced many similar challenges to those faced by gene therapy today. A large turning point in the progression of BMT was the creation of associations to encourage stakeholders, including industry, regulators, and clinicians. This will be the future focus of this research project.

Conclusions

Gene therapy has progressed since 1990, transitioning from academic bench to patient bedside.

• Understanding of basic science has improved, but other issues hinder its useful application.

• Translational barriers are difficult to overcome through lab-based research alone.

• A key limiting factor is uncertainty concerning the maturity of the technology on the part of non-academic stakeholders, including industry, regulators, and clinicians.

• Further work will assess how these groups could be engaged through different types of collaboration to streamline the translational pathway for gene therapy.

How you can help

Future work in this research area depends on the involvement of gene therapy researchers. If you have interacted with industry/academia in any way and would be willing to give a short interview by phone or in person please leave your email address on the attached sign-up sheet. Thank you.

References


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The other members of CASMI and the Gene Therapy Research Group