World leading research funded by DEBRA

DEBRA UK is part of DEBRA International, a worldwide network of national groups working on behalf of people living with epidermolysis bullosa (EB). EB is a family of genetic skin conditions where keratins, collagens or laminins required to bind layers of skin together may be absent, making the skin fragile and prone to blistering and open wounds. DEBRA UK has been the largest funder of global research since its formation nearly 40 years ago and jointly manages a centralised research grant assessment process on behalf of DEBRA International. This coordinated approach, which helps to avoid unnecessary duplication and ensures International research efforts are tightly focused, has enabled significant progress in the understanding of EB in recent years.

It is critical to focus research priorities around the most important issues identified by people living with the condition. There is a need for research into effective treatments and cures for EB, but there is also an immediate and equally important demand for symptom-relief to improve quality of life. DEBRA's research priorities are:

- Improved understanding of the biology and genetics of all forms of EB
- The development of potential therapies and treatments
- Enhanced understanding of the nature of wound healing and the development of skin cancer in EB, leading to prevention and management strategies
- Clinical-care research into symptom relief, such as chronic pain and itch.

POTENTIAL TREATMENTS

A number of novel approaches are in development, with many of these approaches are now moving to early clinical trial stage.

GENE REPLACEMENT

Gene replacement is the focus of a number of research projects. Several clinical trials are now in progress based on ex-vivo culture of EB keratinocytes and/or fibroblasts, the use of viral vectors to replace 'faulty' genes and re-introduction to the patient by a number of routes, including skin grafts.

CELL-BASED THERAPY

Recently published results from an early phase clinical trial of intravenously administered allogeneic mesenchymal stem cells in children with the recessive dystrophic type of EB demonstrated reduced skin inflammation and better wound healing, as well as less pain and itch.

Revertant mosaicism is a remarkable phenomenon where some patches of skin in patients undergo spontaneous correction of the genetic defect. Healthy skin derived from a revertant patch can be used to heal areas affected by EB. Successful work in this area paves the way for personalised 'natural' gene therapy, and also has implications for ex-vivo technology.

PROTEIN REPLACEMENT THERAPY

Recent studies have explored the possibility of generating healthy skin by replacing missing proteins. The introduction of recombinant type VII collagen has been tested in mouse models. Results showed reduced blister formation and markedly prolonged survival. Further work is ongoing in this area.

DRUG REPURPOSING AND DEVELOPMENT OF NOVEL AGENTS

Drug repurposing is a promising area of research. Losartan, already approved for hypertension, has been shown to reduce growth factor-mediated fibrosis in EB and may have further implications for reduced inflammation. Other drugs in development may be effective in treating some types of cancer in EB.

CONCLUSION

In the last 20 years, basic research has greatly increased understanding of the biological mechanisms involved in EB. The pace of research is now speeding up dramatically and a striking number of clinical trials are expected to take place over the next three years. None of this would be possible without the generous support of individuals and organisations such as DEBRA and also the Sohana Research Fund in the UK, which has the vision to invest in research. WUK

Further information

If you would like more information on DEBRA or EB, or if you are interested in attending a course or study day, please visit: www.debra.org.uk/healthcare-professionals

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