Oncology adoptive T-Cell therapy

The patient pathway

Tamara Garcia-Lopez

Lead Research Nurse

Advanced Immune and Cell Therapies

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Objectives:

1. To define the concept of ‘patient pathway’.

2. To identify unique characteristics of the patient pathway in Oncology Adoptive T-Cell Therapy.

3. To describe the complexity of the patient pathway in Oncology Adoptive T-Cell Therapy.

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An introduction to Patient Pathways in Oncology

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Patient pathway

=

...Patient journey

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Defining pathways:

Patient pathways, clinical pathways or **care pathways** operate as standardised packages of health care **based on guidelines for the condition in question**[(1)]

Criteria[(2)]**:**

- Structured and multidisciplinary.
- Translation of guidelines or evidence into local structures.
- Detailed steps of a treatment plan presented as algorithm, guideline, protocol or other 'inventory of actions'.
- Timeframes or criteria-based progression.
- Aimed to standardise care for a specific populations.

(1) Salamonsen, A., Kiil, M. A., Kristoffersen, A., Stub, T. and Berntsen, G. (2016). 'My cancer is not my deepest concern': life course disruption influencing patient pathways and health care needs among persons living with colorectal cancer.' *Patient Preference and Adherence*, Volume 10, August, pp. 1591–1600.

(2) Kinsman, L., Rotter, T., James, E., Snow, P. and Willis, J. (2010) 'What is a clinical pathway? Development of a definition to inform the debate.' *BMC medicine*, 8, May, p. 31.

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One pathway for multiple patients

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Some challenges

- **Cost-effectiveness:** unique pathways, followed by only one patient, are costlier than frequently used pathways[(1)].

- **Pathway mapping:** to provide high-level view to illustrate the whole care system without losing detail of specific activities[(2)].

- **Lack of inclusion of sociocultural aspects[(3)]:** one size fits all.

(1) Dahlin, S. and Raharjo, H. (2019) 'Relationship between patient costs and patient pathways.' *International Journal of Health Care Quality Assurance*, 32(1) pp. 246–261.
(2) Mould, G., Bowers, J. and Ghattas, M. (2010) 'The evolution of the pathway and its role in improving patient care.' *BMJ Quality & Safety*, 19(5) pp. e14–e14.
(3) Salamonsen, A., Kiil, M. A., Kristoffersen, A., Stub, T. and Berntsen, G. (2016). 'My cancer is not my deepest concern': life course disruption influencing patient pathways and health care needs among persons living with colorectal cancer.' *Patient Preference and Adherence*, Volume 10, August, pp. 1591–1600.

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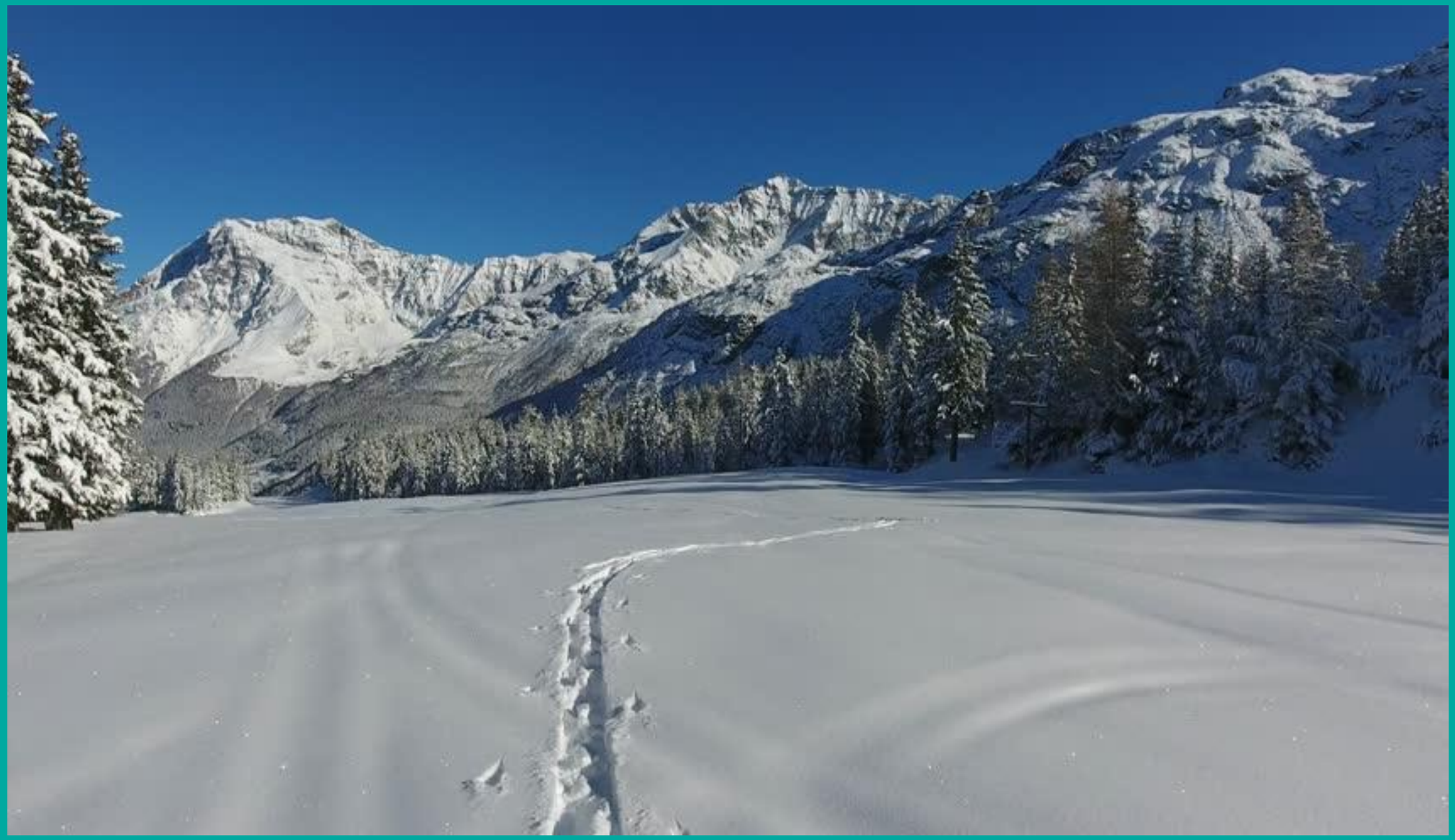
Pathway or off-trail?



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Benefits[1,2]

- **Cost and time-to-treatment reduction**.
- Maintaining or even **improving quality** of care.
- **Optimal sequence** of medical actions.
- **Facilitates communication** between teams, departments and/or institutions.
- Care is **streamlined and standardised**.
- **Reduce cancer disparities**.

(1) Wicke, C., Teichmann, R., Holler, T., Rehder, F. and Becker, H. D. (2004) 'Design and use of patient pathways in general surgery.' *Der Chirurg; Zeitschrift fur alle Gebiete der operativen Medizen*, 75(9) pp. 907–15.

(2) Gage-Bouchard, E. A., Rodriguez, E. M., Saad-Harfouche, F. G., Miller, A. and Erwin, D. O. (2014) 'Factors Influencing Patient Pathways for Receipt of Cancer Care at an NCI-Designated Comprehensive Cancer Center.' Adams, J. (ed.) *PLoS ONE*, 9(10) p. e110649.

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A patient pathway in Adoptive T cell therapy for Oncology

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Adoptive T cell therapy or Immune Effector Cells

An umbrella term for some types of Advanced Therapy Medicinal Products (ATMPs) which harnesses the immune system to fight disease and to create a sustained anti-tumour response

Adoptive T-cell therapy (ACT) consists of isolating, with or without genetically modifying, expanding and reintroducing tumour-specific T lymphocytes into patients with cancer

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Considerations for Adoptive T cell therapy

- New toxicities
- ?Long-term side effects
- Effectiveness: inter-individual variability
- Changing traditional treatment landscape
- Complex coordination at treating centres
- Education
- Regulations (national and international)
- Availability
- Cost
- Health tourism

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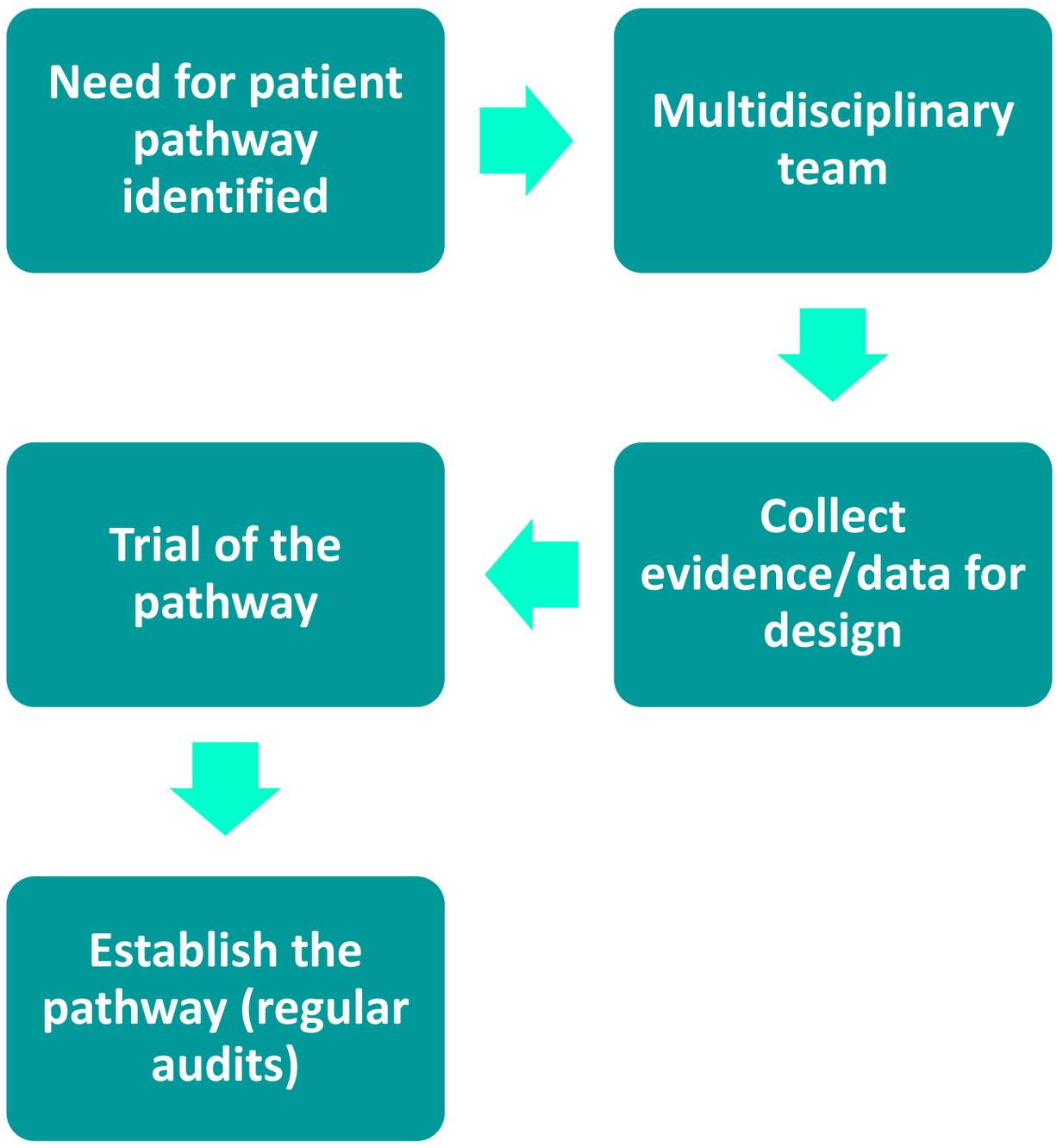
The patient pathway in oncology adoptive T cell therapy:



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Mapping out the patient journey in adoptive T cell therapy:

1. Patient **identification**
2. Patient **selection**
3. **Product manufacturing** related activities
4. Patient **treatment** and toxicities **management**
5. Patient **follow up**
6. **Discontinuation** of oncology adoptive T cell pathway

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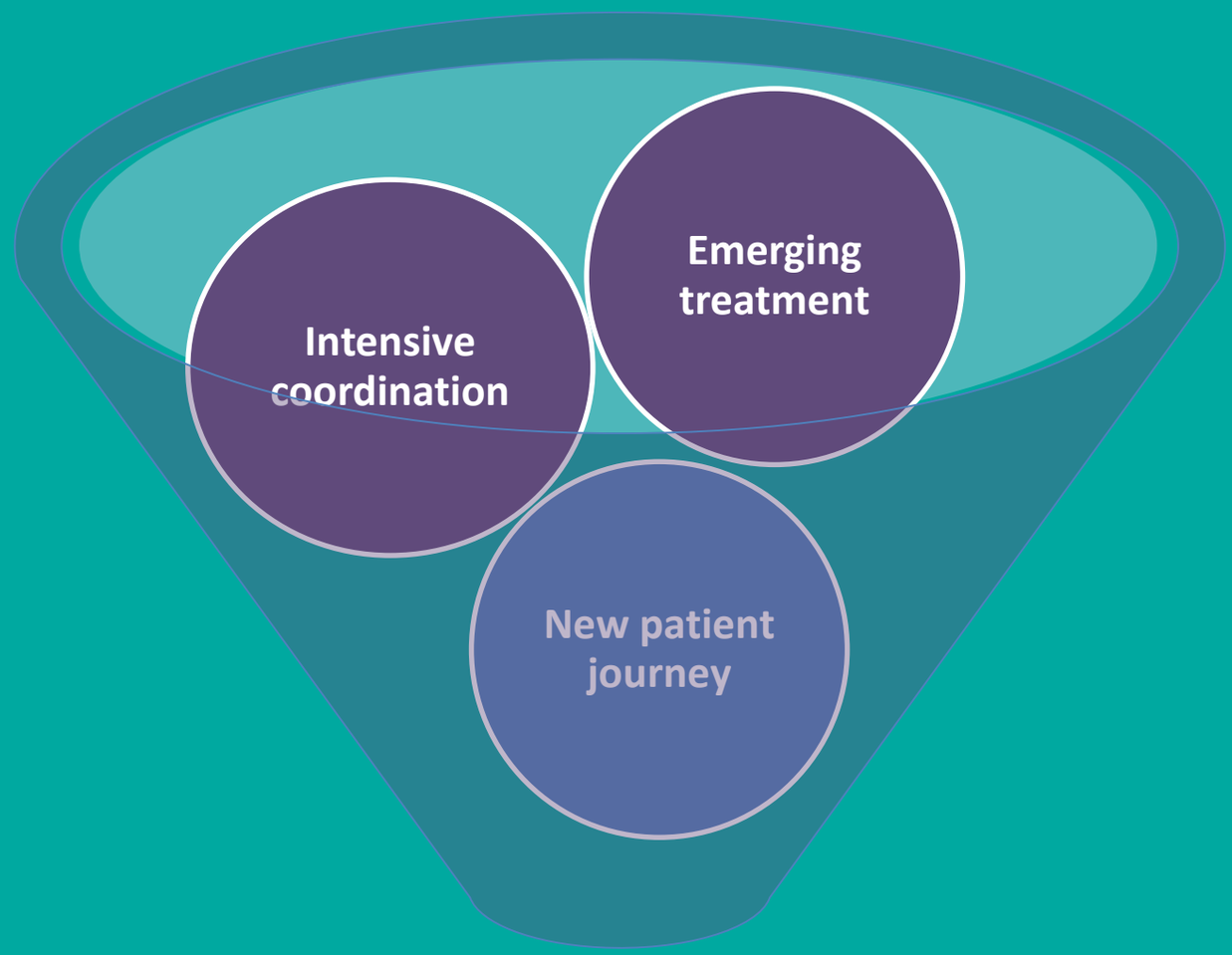
Deceptively simple….



Complex patient pathway

Pan-Man ATMP patient pathway
Version 1.0 (01_Sep_2019)

Patient identified at local centre

OR

Patient identified at ATMP centre

Referral

Patient eligibility assessed at ATMP centre (MFT/MFT paeds/Christie)

Patient suitable for ATMP treatment?

NO

Patient to be referred back to primary referral team

Waiting list

NO

YES

NHS commissioned

National MDT

Approved?

YES

Research

Patient to be discussed with trial sponsor to discuss scheduling and manufacturing slots

Material procurement for product manufacturing at manufacturing site

Apheresis

OR

Fresh biopsy (surgery)

OR

Archival tissue

Patient appointments to be scheduled at ATMP treating centre

ATMP manufacturing process successful

Coordination with supportive departments (i.e. stem cell lab, pharmacy, ICU, admission ward)

NO

Ambulatory care for pre-conditioning chemo until mandatory admission

Mandatory admission for pre-con chemo?

YES

Patient admission

Day 0: Cell infusion

Toxicity that requires ICU?

NO

YES

ICU admission

Discharge from ICU during minimum admission period?

YES

NO

Admission to hospital appropriate ward

Patient Discharge

Patient fit for treatment. Infusion date planned

Patient to remain admitted in hospital as per local standard (NHS commissioned) or as per trial protocol (research)

Patient Discharge: patient to remain 1h away from treating centre for 30 days

Long term follow up:
-Local team if possible
-ATMP treating centre (research)

Patient to be referred back to primary referral team

NO

YES

Disease progression?

Short-term outpatient appointments for follow up at ATMP treating centre

KEY:
1.Patient identification
2.Patient selection
3.Product manufacturing related activities
4.Patient treatment and management
5.Patient follow up
6.Patient out of the ATMP pathway

Note: if patient requires admission during short-term outpatient follow up the preferred admission hospital is the ATMP admission centre

1. Patient identification

Referring site vs treating site (ACT)

Referral in most of the cases

Initial consultation at treating site

Challenges:

-Managing patient expectations

-Uncertainty

-The DOs and DON'Ts

-Communication

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2. Patient selection

Clinical trial vs Standard of care

Suitability of the patient – initial assessment

Challenges:

-Time-to-treatment waiting times

-Delays due to outstanding tests

-Initial scheduling of appointments

-Coordination

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3. Product manufacturing related activities

Tissue procurement:

-Apheresis: CAR-T cells, TCRs

-Tumour tissue: TILs

-?Archival tissue

Challenges:

-Manufacturing issues: delays.

-Potential failures: low number of cells, incorrect collection or processing, failure to expand cells, poor viability of the cells…

-Bridging treatments - referring site vs treatment site

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4. Patient treatment and toxicities management

Key points:

- **Admission: pre or post pre-conditioning**
- **Day 0: infusion**
- **Follow up during admission: toxicities - ?ICU**
- **Discharge**

Challenges:

-Patient education
-Staff education
-Treatment issues: delays, infusion problems
-Management of toxicities: ?escalation of care (ICU)
-Admission prolongation
-Transport and accommodation for relatives

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5. Patient follow up

Starts at discharge after treatment – Not the end of the patient pathway!

- **Short-term follow up**
- **Long-term follow up**

Challenges:

-Requirements: restrictions, distance to hospital.
-Support for patient and relatives
-Readmissions: ?where
-Late side effects
-When to refer patient back to local hospital
-Clinical trials: long-term follow up to happen at treating site (implications)

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6. Discontinuation of the oncology adoptive T cell pathway

Could happen at any point – patient progression or withdrawn

Full discharge from treating centre

Challenges:

-Patient expectations

-Clinical trials: long-term follow up – potentially very lengthy period

-Information to provide to referring site

-Long-term side effects

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Conclusions

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Objectives:

1. To define the concept of ‘patient pathway’ – **similar to a journey. Different definitions. Challenges of implementation.**
2. To identify unique characteristics of the patient pathway in Oncology Adoptive T-Cell Therapy – **new treatment with new implications. Most of activity still in early phase research.**
3. To describe the complexity of the patient pathway in Oncology Adoptive T-Cell Therapy – **patient expectations, complicated schedules, different teams involved, communication between departments and teams.**

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Questions?

Thank you!

Tamara Garcia Lopez
Lead Research Nurse
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The Christie NHS Foundation Trust