Advanced therapy medicinal products

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EAHP POSITION PAPER ON ADVANCED THERAPY MEDICINAL PRODUCTS

Making a difference by revolutionising patient care!

The use of advanced therapy medicinal products (ATMPs) to treat disease and injury is growing. The European Commission (EC) noted this in its Pharmaceutical Strategy for Europe which also touches on ATMPs in the section covering enabling innovation and digital transformation.[1] The European Medicines Agency (EMA) plays a central role in the authorisation of new therapies and included supporting the translation of ATMPs into patient treatments as one of the strategic goals and a core recommendation for human medicines in its Regulatory Science to 2025 Strategy.[2]

Within the European Union (EU), ATMPs are centrally regulated[3] and cover biological medicinal products that can be classified as either gene therapy medicinal products (GTMPs), somatic cell therapy medicinal products (sCTMPs), tissue-engineered medicinal products (TEPs) or any combination of the three.[4] They are often injectable and all healthcare professionals, including hospital pharmacists, need to understand how to handle ATMPs safely. Indeed, hospital pharmacists not only encounter ATMPs during clinical trials but also during regular clinical practice and may be called on to reconstitute them.

This position paper of the European Association of Hospital Pharmacists (EAHP) outlines the roles and responsibilities of hospital pharmacists in the handling of ATMPs, addresses their education and training in relation to these products and provides insights on the assessment of ATMPs and pharmacoeconomics.

EAHP states that the management of ATMPs, as licensed medications, is the responsibility of the hospital pharmacist.
EAHP urges competent authorities across Europe to utilise the best practices and outcomes gathered by the Special Interest Group focused on hospital pharmacists' preparedness for in-vivo gene therapy medicinal products.
EAHP recommends the rapid development of European education and training materials in collaboration with scientific societies for healthcare professionals covering the entire ATMP spectrum.
EAHP calls on pharmacy schools and professional bodies offering continuing education to integrate training of pharmacists on ATMPs into their curricula and training programmes.
EAHP recognises the importance of further promoting the information sharing and communication on ATMPs to patients and patient organisations.
EAHP reminds national competent authorities to recognise the invaluable role of hospital pharmacists in regard to the assessment of ATMPs and pharmacoeconomics.

THE ROLE AND RESPONSIBILITIES OF THE HOSPITAL PHARMACIST IN ATMP HANDLING

ATMPs are innovative and complex medicines used to treat a variety of human health issues. Areas of application include, but are not limited to, cancers, neurodegenerative diseases, inherited diseases and autoimmune diseases.[5] In particular, patients suffering from severe, rare or chronic diseases might benefit in the future from the growing use of ATMPs. Hospital pharmacists are responsible for ensuring the safe and effective use of medicines. This expertise of the pharmacy workforce should be a central component to adequate delivery of ATMPs within hospitals.[6] Their participation is not only invaluable in clinical trials for ATMPs where they are responsible for the correct receipt, storage, distribution and control of the clinical trial drug, but also for routine clinical practice.

For holistic management and to guarantee the quality and safety of treatments with ATMPs, increased interaction and collaboration between different healthcare professionals is essential.[7] ATMPs are medicines and so by definition, they fall under the responsibility of the hospital pharmacist. Within the multidisciplinary treatment team, the hospital pharmacist must therefore be involved in their logistics (including process and order management), contract management, compounding/production in the hospital,[8] reconstitution, quality control, medication management, pharmacovigilance and clinical follow-up.[9] Where applicable, hospital pharmacists should also be involved in reimbursement negotiations. **EAHP states that the management of ATMPs, as licensed medications, is the responsibility of the hospital pharmacist.**

Concerning the pharmacovigilance of ATMPs, hospital pharmacists need to be directly involved in adverse drug reaction reporting using information systems. Due to their training, hospital pharmacists are uniquely positioned to be able to impact medication safety at the individual patient level. Their medication management abilities allow them to analyse the performance of medication processes and to lead redesign efforts to mitigate drug-related outcomes that may cause harm.[10] These clinical

pharmacy skills are universally applicable and play a crucial role for ATMPs. Also, the digitalisation of healthcare must be further exploited. Pharmacovigilance systems interfaced with electronic health records support monitoring the performance of medicines and help identify medication errors and adverse drug reactions. The involvement of hospital pharmacists in their management has not only been proven to enhance patient safety but can also support earlier detection of adverse drug reactions and medication errors and thereby reduce high healthcare costs.[11]

Estimations show that ATMP development and in turn the application for marketing authorisation is growing. By 2025, it is predicted that 10 to 20 cell and gene therapy products could be approved each year.[12] The authorisation of ATMPs is carried out by the EMA, however, there should not be any additional requirements imposed by the marketing authorisation holder on hospital pharmacists that are handling these products, especially for situations where existing national or international standards are already in place. Procedures for handling gene medicines in hospital pharmacies are similar to those already in place for handling hazardous substances, such as cytotoxic agents.[13] The handling includes activities such as ordering, proper storage, preparation, dispensing, administration, cleaning, waste management and transportation. To ensure that all health systems can cope with the increase in ATMP use, best practices should be shared among hospital pharmacists across Europe. When handling biohazards, it is paramount that technical requirements, storage and infrastructure, e.g. separated cleanroom areas, hoods, special safety gowns and techniques, are provided. Having adequately trained staff is a prerequisite. Sufficient funding is essential to ensure appropriate staffing levels and optimal conditions for the handling of ATMPs in hospital pharmacies. EAHP's Special Interest Group focused on hospital pharmacists' preparedness for in-vivo gene therapy medicinal products is one of the front runners in this area.[14] **EAHP urges competent authorities across Europe to use the best practices and outcomes gathered by the Special Interest Group focused on hospital pharmacists' preparedness for in-vivo gene therapy medicinal products.** The Special Interest Group is looking at the requirements for the handling, preparation and administration of gene therapy products throughout Europe in order to provide guidance and training materials to hospital pharmacists.

EDUCATION AND TRAINING CONCERNING ATMPS

One of the target areas of ATMPs is to address significant and growing unmet healthcare needs. With research and development for these products increasing and more and more ATMP-based treatments becoming an integral part of clinical practice, the demand for training and educating healthcare professionals is also rising.[15] To further assist its members, EAHP has set up a Special Interest Group focused on hospital pharmacists' preparedness for in-vivo gene therapy medicinal products.[16] One of the goals of this group is to develop best practices, support and guidance materials for hospital pharmacists and other healthcare professionals within the multidisciplinary team environment for the handling of in-vivo gene therapy medicinal products. However, not only the creation of training materials for GTMPs is important but also efforts should be made to generate educational information for sCTMPs and TEPs. Consequently, **EAHP recommends the rapid development of European education and training materials in collaboration with scientific societies for healthcare professionals covering the entire ATMP spectrum.** EAHP also acknowledges that specific training for the handling of certain ATMPs approved in Europe might be necessary due to the shared responsibility of the pharmaceutical industry and the healthcare professionals handling these products. The requirements for this training should, however, be approved by the EMA. This training should only extend to novel and essential processes and not to already established hospital pharmacy practices and procedures.

In addition to the creation of materials, the training of hospital pharmacists and other healthcare personnel handling ATMPs needs to be strengthened. Competencies aimed at ATMPs should include theoretical and practical skills in virotherapy, biohazard management, genetically modified organism (GMO) legislation, molecular and cell biology (such as cell imaging or flow cytometry), as well as their application to gene therapy, cell therapy, and tissue engineering. These new competencies require further training in good manufacturing practices (GMP) for ATMPs and translational research related to hospital pharmacy challenges.[17] **EAHP calls on pharmacy schools and professional bodies offering continuing education to integrate training of pharmacists on ATMPs into their curricula and training programmes.** For instance, for the development of programmes specifically focused on gene therapies, issues to consider include the best practices identified by EAHP's Special Interest Group focused on hospital pharmacists' preparedness for in-vivo gene therapy medicinal products.[14]

Holistic development and management of AMTPs do not only involve healthcare professionals but also patients, their carers, families and representatives.[18] Together with regulators, healthcare professional organisations need to ensure that patients and their representatives become more aware of and involved in ATMPs. **EAHP recognises the importance of further promoting the information sharing and communication on ATMPs to patients and patient organisations.**

ASSESSMENT OF ATMPS AND PHARMACOECONOMICS

It is important to acknowledge that hospital pharmacists play a key role in the provision of sustainable and quality healthcare. They ensure the timely selection of the most appropriate medicinal product for the right patient under the highest quality standards.[19] The hospital pharmacists' pharmacoeconomic expertise and their involvement in health technology assessments are even more crucial for ATMPs due to their exceptional costs.[20] Assessments of ATMPs should follow the same principles as those of the medication formulary system in which decisions are based on clinical, ethical, legal, social, quality-of-life, safety and pharmacoeconomic factors that result in optimal patient care and include the active and direct involvement of physicians and other healthcare practitioners, such as pharmacists.[21] **EAHP reminds national competent authorities to recognise the invaluable role of hospital pharmacists in regard to the assessment of ATMPs and pharmacoeconomics.**

Collaborators Delegates of the 52nd EAHP General Assembly.

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