Original Article

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Transitional care management in patients with auto-inflammatory diseases: experience of cooperation of a paediatric and adult centre

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Abstract

Objectives: Auto-inflammatory Diseases (AIDs) are a group of diseases with a strong genetic component, inducing an inappropriate activation of innate immunity. The patients with pediatric onset will face the transitional care (TC) from a pediatrician to an adult care setting, during the critical phase of the adolescence. That implies a risk of failure and drop out, due to the different approach of pediatrician compared to the adult doctor. To describe the model of TC for AIDs from a paediatric to adult centre of two hospitals in Rome, and to pointing out the different steps emerged from specific experiences.

Methods: In November 2020, a Board of paediatricians and internists discussed their experience to identify "hot topics" for a successful management of TC.

Results: The Board agreed on the optimal time for the transition (12–18 years). Specific elements to be considered are the reached level of emotional and intellectual maturity, and the clinical stability of the disease.

Conclusions: The TC of patients with chronic AIDs, requires a strong cooperation to define the adequate follow-up, and to guarantee the compliance to the treatment. This model allows us to investigate AIDs complex cases, requiring a long period of observations.

Keywords: auto-inflammatory disease; periodic fever; personalized medicine; transitional care.

Introduction

Auto-inflammatory Diseases (AIDs) are a group of rare conditions, with a strong genetic component, characterized by an inappropriate activation of innate immunity. First, clinical presentation of these diseases includes recurrent fever, defined as three or more episodes in a maximum period of six months. Usually different signs and symptoms are chest or abdominal pain, lymphadenopathy, serositis, cutaneous and musculoskeletal symptoms [1]. The diagnosis is often a challenge, caused by low incidence, poor awareness of physicians and overlapping clinical presentations of these conditions. Since they are characterized by long diagnostic delay, frequently over 10 years, consequently, although AIDs can occur during childhood, they are often recognized in adulthood. For example, in an Italian cohort, the TRAPS syndrome, the most frequent autosomal dominant auto-inflammatory fever, has an average diagnostic delay of about 18 years [2]. The long course of these conditions implies need for the patient to a passage from a path of paediatric care to

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one handled by the adult physician. This step is called Transitional Care (TC) or Transition, based on the "organizational need" of transferring care of patient with chronic diseases, from paediatric to adult medical centres. The transition focuses the fact that adolescents acquire skills and possibilities to meet their physical, psychosocial, educational and vocational needs during the transition to adulthood.

Adolescence and youth are a unique period of development that requires guidance, planning and education to prepare them to be able to manage their wellness and health needs as adults. For young patients with AIDs, it is also necessary to acquire the ability to manage their chronic pathology autonomously and independently. The transition of patients with auto-inflammatory diseases is not easy, especially in those subjects in which the diagnosis remains unclear and that is why collaboration between the paediatric and adult centres is fundamental.

We move from the situation in which health workers provide support to the whole family who is fully back in the management of the disease to an individual counselling, in which physician interfaces with an adult patient with his maturity and emotional intelligence.

Other differences are the very extensive involvement of different specialties in paediatrics compared to the central role of adult physician. Moreover, number of followed patients is quite low for paediatricians and rather high in adults and, consequently, length of waiting lists and peer support are more extensive for children than adult patients.

The most recent publications or web-sites, including the EULAR/Paediatric Rheumatology European Society (PReS) Transition recommendations, provide the general frames for Transition in Paediatric Rheumatic Diseases (Table 1) [3–6].

A taskforce of 27 paediatric and adult rheumatologists evaluated the applicability of the 2016 EULAR/PReS recommendations for TC to the Italian rheumatology practice and healthcare system and formulated additional country-specific statements aimed to increase their suitability [7].

However, these policies should take into consideration the local infrastructure, the family or patient cultural background, and the impact of the Covid-19 pandemic on healthcare [6]. If the transition from the child's rheumatologist to adult's physician is not effective, there is the real risk of losing patient to the clinical follow-up and stopping prescribed therapies. Direct transfer of responsibility from one professional figure to another must take place gradually with careful passage of clinical relationships and, preferably, when the disease is in a stable phase.

McCann et al. [8] define best practice for adolescents and young adults (AYA) with juvenile onset Rheumatic and Musculoskeletal Diseases (jRMDs) during transition and transfer to adult care during the Covid-19 pandemic and beyond; this work evidences impact of Covid-19 pandemic on healthcare, posing a further risk to the planning of transition process.

The aim of this paper is describing the experience of a transitional care from a paediatric to adult centre, belonging to two different hospitals in Rome, for patients with AIDs. We describe the results of a meeting held in November 2020, "Board on management of auto-

Table 1: Recommendations, standards and proposed quality indicators on transitional care for young persons with jRMD (juvenile rheumatic and musculoskeletal diseases).

Recommendations, standards and proposed quality indicators on transitional care for young persons with jRMD*
1. Young people (YP) with jRMD should have access to high-quality, co-ordinated transitional care, delivered through partnership with healthcare professionals, YP and their families, to address needs on an individual basis
2. The transition process should start as early as possible; in early adolescence or directly after the diagnosis in adolescent-onset disease
3. There must be 'direct' communication between the key participants (and as a minimum, to include the YP, parent/carer, and a member each of the paediatric and adult rheumatologist teams) during the process of transition. Before and after the actual transfer, there should be 'direct' contacts between paediatric and adult rheumatologist teams
4. Individual transition processes and progress should be carefully documented in the medical records and planned with YP and their families
5. Every rheumatology service and clinical network—paediatric and adult—must have a written, agreed and regularly updated transition policy
6. There should be clear written description of the Multidisciplinary team (MDT) involved in transitional care, locally and in the clinical network. The MDT should include a designated transition co-ordinator
7. Transition services must be YP focused, be developmentally appropriate and address the complexity of YP development
8. There must be a transfer document
9. Healthcare teams involved in transition and adolescent-young adult care must have appropriate training in generic adolescent care and childhood-onset
10. There must be secure funding for dedicated resources to provide uninterrupted clinical care and transition services for YP entering adult care
11. There must be a freely accessible electronic-based platform to host the recommendations, standards and resources for transitional care
12. Increased evidence-based knowledge and practice is needed to improve outcomes for YP with childhood-onset RMD

From Foster HE, et al. EULAR/PReS standards and recommendations for the transitional care of young people with juvenile-onset rheumatic diseases. Ann Rheum Dis. 2017 Apr;76(4):639–646.

inflammatory diseases: the transition from child to adult"; where was an extensive discussion on the AIDs in children and adults was done.

Paediatric unit is part of the Sant' Eugenio Hospital discussed with paediatric, whereas the adult medical team of Periodic Fevers and Rare Diseases Research Center belongs to Catholic University and to A. Gemelli Foundation in Rome.

Patients and methods

In November 2020, a Board was organized about transition of AIDs patients transferred from a paediatric to an adult care setting during the last 2017–2020 years. About 40 patients transited from one center to another, of which 10 with Familial Mediterranean fever, three with TNF Receptor-associated Periodic Syndrome (TRAPS), two Chronic Recurrent Multifocal Osteomyelitis (CRMO), five Periodic Fever Adenitis Pharyngitis Aphthosis (PFAPA) who continued to have periodic fever and exudative pharyngitis in adulthood, recurrent pericarditis (three patients) the remaining patients fall within the Systemic Undefined recurrent fever (SURF). Among the transferred patients there were also five patients with Behcet's syndrome and three with Systemic onset juvenile idiopathic arthritis.

During the video-meeting, the physicians, equally divided between five paediatricians and five internists, discussed their experience in the handover between paediatrician and adult doctor, identifying "hot topics" for a correct management of the patient's transition. Clinical or anamnestic data from patients were blinded to respect the needs of privacy.

Results and discussion

The first result was obtained sharing the natural history of adult patients living with chronic diseases with paediatric onset, to build the model to avoid diagnostic delay. While, now it is possible identify genetic and rare diseases better than in the past, treating them more efficiently, the best results were obtained only when all pivotal elements are considered.

We codified transition in various stages spanning 12–18 years. At the age of 12, we begin to inform the family that the transition should be implemented; at the age of 14, a path is established with the stages beginning of the transition to the age of 16 and the transition towards the age of 18 is completed. Between the ages of 18 and 22, we take stock of what the transition has been like. Throughout this period, the paediatrician and the adult physician continue to interface to ensure that transferring of clinical documentation completed. We have made the efforts to meet these goals.

Therefore, essential elements have been identified:

1) A fluid and direct collaboration between paediatric and adult medicine is best achieved using online platforms, now available for "telemedicine".
2) A diligent preparation for the transitional care (TC) is the key to success allow an optimal collaboration between doctors and family.
3) An evaluation of psychological maturation of the adolescent allows to leave the protective figure of paediatrician and taking into consideration the role of insurance, work and school aspects.
4) Since this complex planning requires time and coordination between the two centres, all specialist care concerning the patient should be transferred from a paediatric setting to adult one, in addition to primary care.
5) The importance of the transition taking place at a time of clinical stability of the disease. This choice reduces the possibility for patients to feel abandoned by the paediatric center and therefore to be able to wait for the completion of the handover between the two centers.

In clinical practice, we choose the right time for this step, identifying it for each patient and based on the needs of both the family and the adult reference center. The paediatrician provides the adulthood center with all the clinical documentation, without leaving family members the burden of having to recover it. The last and important phase is the verification of the achievement of the objectives, carried out usually after 3 or 4 years, about at the age of 22–26.

During this pandemic, due to less frequent face-to-faces visits, we implemented the use of online platforms and this allows us to discuss the results with less difficulty. Technology can be used to an advantage in this age group and the telemedicine is feasible for providing care to youth for a variety of health concerns. These issues should be included in discussions regarding service developments and the use of telemedicine to aid transition processes. Many information resources have recently been developed to support healthcare professionals and families in telemedicine, both generically and specifically for paediatric immunological and musculoskeletal diseases [7–10].

The discussion of the Board also involved the use of the diagnostic tools, as IL1 inhibitor for diagnostic confirmation and new indications about the importance of using this drug in AIDs, carrying out a systematic review of all clinical studies focused on the efficacy of this drug at different doses. For example, based on literature, in

Familial Mediterranean Fever, the most ancient AIDs, IL1 inhibitor can be used in case of colchicine resistance with a high success rate (76% of cases) getting remission both clinical and blood parameters [11], whereas the response is obtained both with daily subcutaneous administration and on demand administration, upon the appearance of prodromal symptoms [12]. In addition, medical staff of Periodic Fever and Rare Diseases Research Centre reported their clinical experience using IL-1 inhibitors in patients with AIDs, Still's disease and recurrent pericarditis (30 patients), in terms of effectiveness, consistently with previous works; indeed, only a safe drug without serious adverse reactions can be used as diagnostic tools. The most reported side effect, in about 70% of patients, is in the site of injection, of skin reactions, transient and easily manageable with cortisone ointments, anti-histamines. Therefore, we considered it a minor effect in comparison with the diagnostic and therapeutic benefit. That is of extraordinary importance for patients with systemic undefined recurrent fevers (SURF). This group of AIDs, characterized by self-limiting episodes of systemic inflammation with overlapping signs and symptoms, in absence of confirmed molecular diagnosis, is increasing diagnosed in patients with a suspected hereditary recurrent fever. Recent evidences suggest the IL1 inhibitor and colchicine use in multi-organ AIDs as "Swiss knife" during diagnostic workup of SURF [13].

Paediatric rheumatologists illustrated their cases with onset in the paediatric age transferred to the adult centre, confirming the previous statements too.

Conclusions

This Board showed the importance of systematic and periodic meetings to discuss problematic cases, particularly, for patients with systemic undefined recurrent fevers (SURF).

This paediatric/adult centre collaboration model in AIDs opens the door to the possibility of both investigating and describing jointly complex clinical cases or rare diseases, with enormous benefits for the patient care, and scientific aims.

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