ROMSE- a database for rare diseases with orofacial and craniofacial manifestations

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Introduction

The public focus on rare diseases has increased in the European Union since 2009 when the council of the European Union recommended that the member states develop and implement plans and strategies for rare diseases at suitable levels or validate suitable measures for rare diseases in the scope of other health protection strategies, in order to ensure that patients suffering from rare diseases receive good medical care [1]. In particular, member states were called upon to develop and accept a corresponding plan by the end of 2013. In 2013, the German Cabinet adopted a National Action League for People with Rare Diseases (NAMSE). This national action plan comprises a total of 52 suggested measures and 7 action fields. One of these action fields concerns the development of registers and databases [2]. With this in mind, a project was initiated in 2011 that aims to develop a database for the "Recording of Orofacial Manifestations in People with Rare Diseases" (ROMSE). This database should supply general practitioners, dentists, orthodontists, oral surgeons, oral and maxillofacial surgeons, patients and their relations with targeted information on intraoral, perioral and extra oral changes, diagnostics and the specialised area-related therapy options when treating rare diseases.

Material and Methods

Starting in 2011 material from various databases (Orphanet, e-medicine, Gene Clinics, EMA, OMIM) as well as PubMed, medical literature and "grey literature" was collected and evaluated. Since 2013 the gathered information has been incorporated into a web-based, freely accessible database at http://romse.org. All rare diseases with orofacial manifestations are listed with current subject-specific literature and properly categorized.
In a systematic study of literature in the Orphanet data base, the list of rare diseases recorded there was examined for orofacial pathological changes. In this process rare diseases that showed at least one orofacial component in the Orphanet or OMIM descriptions were integrated in an electronic register. Beside a general pathography, the specific orofacial changes, as well as scientific literature and website links were compiled.

Results

So far 535 rare diseases with orofacial manifestations have been listed in the ROMSE database. 151 rare diseases include dysgnathia, 12 of them craniofacial dysplasia and 148 with cleft lip and palate. There are already two institutions that offer consultations for rare diseases patients with orofacial manifestations.

Figures

Apert-Syndrom

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Krankheitsbeschreibung

Apert syndrome is a malformation disorder characterised by the association of faciocraniosynostosis and osseous and membranous syndactyly of the four extremities. The incidence has been estimated at 1 in 50 000 births. The craniosynostosis is bicoronal and is evident at birth. The longitudinal system (sagittal and metopic sutures) is abnormally broad, even in the first few months of life. The superior maxilla is severely hypoplastic, resulting in malocclusion and a protruding lower jaw. The face is usually broad with a beaked nose. Ocular abnormalities include hypertelorism and sometimes severe exophthalmos. Syndactyly of the fingers and toes may be total (mitten hands and sock feet) or partial affecting the second, third, and fourth digits. Intellectual deficit is frequent and often severe, usually being associated with cerebral malformations. Nearly 50% of patients have increased intracranial pressure. The majority of patients (more than 98%) carry a mutation (Ser252Trp or Pro253Arg) in the gene encoding fibroblast growth factor receptor type 2 (FGFR2). Alu-element insertion mutations in or near exon 9 of FGFR2 are responsible for the remaining cases. Early intervention for craniosynostosis (before the age of six months) may improve the mental prognosis: a significant number of patients who underwent early surgical intervention later showed normal intellectual performance. Correction of the maxillary hypoplasia and hypertelorism should not be carried out until the patient is at least four years old (except in severe cases).
Quelle: Orphanet: an online rare disease and orphan drug data base. Copyright, INSERM 1997. Available on http://www.orpha.net. Accessed 14.03.2014

Orofaziale Manifestation

Dysgnathie, hypoplastische Maxilla, Progenie, kraniofaziale Fehlbildungen

Figure 1: Selected example "Apert-Syndrome" listed at the ROMSE-database

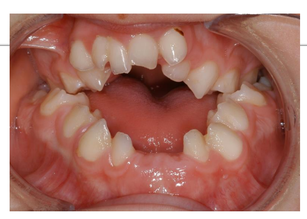
Literatur

- PMID 23614948
- PMID 22449603
- PMID 20809043

Weblinks

- http://www.orpha.net/consor/cgi-bin/OC_Exp.php?lng=EN&Expert=87
- http://omim.org/entry/101200

Kategorien: Dysgnathie | Kraniofaziale Fehlbildung | Maxilla, hypoplastisch | Progenie



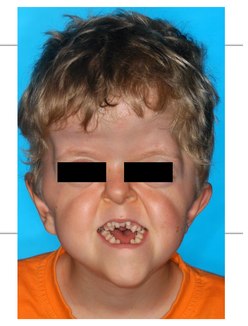


Figure 2: Selected example "Apert-Syndrome" listed at the ROMSE-database

Main groups of orofacial manifestations in the ROMSE register	
Anomalies of the lips (without clefts)	43
Dysgnathia	145
Hematopathia	11
Neoplasia	25
Alterations in the oral mucosa and tongue	135
Bone pathologies	11
Anomalies of the cleft	145
Dental anomalies	190
Others	36

Figure 3: Main groups of orofacial manifestations in the ROMSE-database

Conclusions

Since publications on rare diseases and data on possible care strategies in dental medicine are scant, there is an urgent need to provide the limited available information on a central and publicly accessible platform. This justifies the implementation of a "Database for the Recording of Orofacial Manifestations in People with Rare Diseases" (http://romse.org) as a source of information for physicians, scientists, patients and their relatives, also in compliance with the National Action League for People with Rare Diseases, in which the suggested measure no. 29 is an "Open Source Register System for Rare Diseases in the EU – OSSE" [2]. In the age of digitalisation and global access to online databases, this database which is in the development stage should help physicians and scientists to download information on aspects of dental medicine or oral/maxillofacial surgery in rare diseases, exchange views and form networks. Patients and their relatives can also use the central web-based database to find comprehensive information on the existing disease and the possible care options. Information compiled in a register can serve to create a solid foundation for the generation of adequate data and a basis to optimize future diagnosis and therapy, and increase the evidence [3]. This demand also has validity for dental medicine. Consultation centres should be more common in order to help patients and to improve treatment.

Literature
1. The Council oft he European Union (2009): Council Recommendation of 8 June 2009 on an action in the field of rare diseases (2009/C 151/02). http://eur-lex.europa.eu/LexUriServ.do?uri=OJ:C:2009:151:0007:0010:EN:PDF
2. National Action League for People with Rare Diseases. National Plan of Action for People with Rare Diseases: Action Fields, Recommendations, Proposed Actions. German Federal Ministry of Health, German Federal Ministry of Education and Research, Alliance for Chronic Rare Diseases 2013. http://www.namse.de/english.html
3. Grouven U, Siering U, Bender R, Vervölgyi R, Lange S. Seltene Erkrankungen: Randomisierte kontrollierte Studien auch hier der Goldstandard. Deutsches Ärzteblatt 2015; 112(8) A 326-8.

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