TOOTH EXTRACTION IN A CASE OF SEVERE MIH: THE COURAGE TO DECIDE

Stabilini SA, Olivi F, Valentino ND, Allam A, Orazi M, Cagetti MG

Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy

Aim: in the presence of severe forms of Molar Incisor Hypomineralisation (MIH) with significant impairment of the crown of the First Permanent Molars (FPMs), the clinician must consider the costs and benefits that the small patient faces in the short term in attempting to treat the affected teeth and, at the same time, evaluate the long-term prognosis. The aim of the study is to demonstrate the potential of appropriately planned extraction therapy of FPMs as a solution for severe forms of MIH.

Methods: in 2019, a 7.4-year-old female patient presented to our observation, suffering from a severe form of MIH of 36 and 46, with an open dental bite due to prolonged thumb sucking, odontophobic and rated G1 on the Frankel Collaboration Scale. On orthopantomography, the germs of 38 and 48 were not yet evident. However, it was decided to perform the extraction of the lower FPMs under conscious sedation after obtaining parental consent. A 3-year follow-up after tooth extraction was performed.

Results: two years later, the patient obtained spontaneous mesialisation of the second permanent molars, without the use of an orthodontic appliance, achieving the contact points with the second premolars. A new orthopantomography showed the appearance of lower third molar germs. Moreover, in the short term, due to the rapid disappearance of pain symptoms triggered by thermal and tactile stimuli, home oral hygiene and cooperation during dental visits improved significantly (G3). In addition, an improvement in negative overbite was observed.

Conclusions: the extraction of FPMs, properly planned, can lead to excellent results, as it can solve the complex pathological picture of severe MIH in a single session, saving the patient and his family numerous frustrating dentist appointments and giving the possibility of having two healthy molars in each hemi-arch.

FLOW INJECTION TECHNIQUE FOR RESTORING AMELOGENESIS IMPERFECTA-AFFECTED MOLARS

Florenzano F[1], Maravic T[1], Mazzitelli C[1], Incerti Parenti S[1], Cadenaro M[2], Breschi L[1], Alessandri Bonetti G[1], Mazzoni A[1]

[1]Department of Biomedical and Neuromotor Science, DIBINEM, University of Bologna, Bologna, Italy
[2]Department of Medical Sciences, University of Trieste, Trieste, Italy

Aim: to present a clinical approach for the restoration of Amelogenesis Imperfecta (AI)-affected teeth with the Flow Injection Technique (FIT).

Methods: a 9-year-old uncooperative patient attended to the Dental Clinic of the University of Bologna reporting teeth sensitivity and functional difficulties. After medical, dental, photographical and radiographic examinations, the diagnosis of AI was made, with cusp collapse of teeth 16 and 26 and significant loss of 36 and 46 structure. After strategic collaborative education and dental hygiene instructions, the treatment plan consisted in direct composite restoration of 3.6 and 4.6, and intraoral scans to prepare a Silicone Template (ST) for FIT on 1.6 and 2.6 to reproduce cuspal anatomies (Omnichroma flow bulkfill, Tokuyama) after previous bonding procedures (EE-Bond universal adhesive used in etch-and-rinse mode, Tokuyama). After finishing and polishing, rx control was done and the patients followed up at 1 week, 3 and 6 months.

Results: the first educational approach was necessary to gain patient's collaboration, improve dental hygiene maneuvers and provide support for tooth sensitivity relief. FIT allowed to easily rehabilitate cuspally-destroyed teeth in an esthetic and functional way. At 6 months, no discoloration, chipping or marginal infiltration were noted, and the patient referred no tooth sensitivity, and was satisfied with the esthetic result.

Conclusions: the FIT can be considered a valid treatment approach for the esthetic and functional reconstruction of AI-affected teeth in growing patients.

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CRANIOFACIAL AND ORAL FEATURES OF PALLISTER-KILLIAN SYNDROME: A CASE REPORT

La Torre A, Panzarella V, Bilello G, Giuliana G

Department of Precision Medicine in Medical, Surgical and Critical Care (Me.Pre.C.C.), University of Palermo, Palermo, Italy

Aim: Pallister-Killian Syndrome is a sporadic and rare developmental disorder with an incidence of 1/25000 live births which presents multisystem involvement and caused by the presence of a supernumerary isochromosome 12p–i(12)(p10) that determines 12p tetrasomy, with a mosaic distribution in different cell lines. Aim of this report is to refer the craniofacial and oral characteristics of a pediatric patient.

Methods: from the analysis of the literature, it can be seen that only few studies have so far focused on the oral health status of subjects with PKS. We report the clinical case of an 8-year-old child undergoing a dental examination at the Pediatric Dentistry department of the University of Palermo.

Results: the intraoral clinical examination showed poor oral hygiene with Plaque Index (PI) equal to 2, carious lesions (dmft 7, DMFT 4), hypoplastic enamel of elements 2.1 and 3.1, anterior and posterior crossbite, third class molar and canine relationship and high and narrow palate with stair-palate appearance accompanied by mucous thickening of the upper alveolar arch. Bad habits of atypical swallowing and oral breathing are found. Craniofacial features include sparse hair, low implantation of the ears, muscular hypotonia, telecanthus, short nose with wide root and dorsum, long labial philtrum, Pallister lip, eversion of the lower lip, concave profile with maxillary retrusion and mandibular prominence.

Conclusions: this study underlines the importance of the multidisciplinary therapeutic approach, prevention and periodic dental checks for subjects suffering from PKS.

WHITE SPOT LESIONS DURING ORTHODONTIC CLEAR ALIGNER THERAPY: A CASE REPORT

Cetraro F, Tommasato G, Crupi N, Scordino S, Cagetti MG

Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy

Aim: due to an increasing demand for aesthetics, there has been a shift from fixed orthodontics with brackets to the use of clear aligners to perform orthodontic treatment. One of the advantages of aligners is that they allow patients to perform easier home hygiene and thus reduce the risk of developing caries lesions. However, even with the use of aligners, the occurrence of demineralization has been noted, which although showing less mineral loss is more extensive than lesions found around brackets.

We report a case of caries lesions in an adolescent caused by improper management of aligners.

Methods: G.C.14 years old, came to our attention due to the appearance of white, chalky, opaque stains visible on all teeth, both in the esthetic and non-esthetic areas, arising 6 months after the start of the treatment. The patient is a mixed breather, has inadequate oral hygiene and the dietary history reports frequent intake of soft drinks even without removing aligners.

Results: the patient was motivated to improve oral hygiene, reduce dietary sugar and acidic beverages, to start home use of fluoride gel (1.25%) placed in aligners during night, to undergo hygiene and plaque control sessions and to apply fluoride varnish (5% NaF) quarterly.

Once a reduction in the plaque index was achieved, an infiltrating resin treatment was carried out to restore aesthetics.

Conclusions: although the risk of caries with aligners seems to be reduced, the orthodontist must carefully assess the risk factors, especially in adolescents, and check them before the start of treatment to avoid enamel damage.

STRUCTURAL ABNORMALITIES OF ENAMEL AND DENTINE IN X-LINKED HYPOPHOSPHATEMIC RICKETS

Amatruda S, D'Avola V, Zambon G, Allam A, Bruni G, Clonescu AC

Department of Biomedical, Surgical and Dental Science, University of Milan, Milan, Italy

Aim: X-Linked Hypophosphatemic rickets (XLH) is a rare disorder (1:20'000 birth), due to a mutation of PHEX gene. Mineralized tissues are affected. Aim of this study is to assess structure alterations of enamel and dentin related to XLH.

Methods: primary teeth were collected from a 5yo child with XLH presented at the dental emergency department due to recurrent dental abscesses (5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 7.1, 7.2, 7.4, 7.5, 8.1, 8.4) with no clinical nor radiological evidence of caries. Teeth were processed for Scanning Electron Microscopic (SEM), optical microscopy, µ-Computed Tomography (µCT), or immunohistochemical examination.

Results: SEM analyses revealed no decussing prisms, likely related to increased enamel brittleness, premature abrasion and fissures detected from dentino-enamel junction to the pulp horn. Interglobular spaces between unmerged calcospherites were observed. No mineralization was noted in these spaces. Energy-dispersive X-ray spectroscopy confirmed the absence of Ca and P in these spaces. Histopathological analysis showed interglobular spaces, irregular dentinal tubules, and dentinal fracture lines. µCT analysis revealed dentin defects near pulp chambers, characterized by areas of porosity and decreased mineral density.

Conclusions: the analyses indicate that XLH affects the circumpulpal dentin of teeth, limiting growth and fusion of calcospherites. This results in porous dentin prone to bacterial invasion. Fissures extending upward from the pulp may explain bacterial penetration and spontaneous necrosis of teeth despite the lack of caries or trauma.

MEDICAL CONDITIONS AND MIH IN CHILDREN: A CASE STUDY

Torchia V[1], Pini V[2], Laporta F[2], Rimoldi V[2], Maurino V[1,3]

[1]Unit of Pediatric Dentistry, Director: Prof. L. Tettamanti, ASST Settelaghi, Circolo Hospital, Varese, Italy
[2]School of Dentistry, Dean: Prof. L. Tettamanti, University of Insubria, Varese, Italy
[3]RTT Researcher, School of Dentistry, Dean: Prof. L. Tettamanti, University of Insubria, Varese, Italy

Aim: MIH, linked to ENVIRONMENTAL and pharmacological exposures during dental development, involves reduced enamel mineralization in permanent molars and incisors. This study examines a pediatric patient with MIH and a medical history of rhinitis, asthma, bronchitis, and reflux, treated with corticosteroids and anticholinergics early in life, aiming to investigate the connection between these medical conditions and MIH onset, while describing the dental treatment administered.

Methods: a patient with MIH lesions and a medical history of corticosteroid and anticholinergics use for chronic respiratory conditions and reflux since infancy was evaluated. Severe Post-Eruptive Breakdown (PEB) and enamel opacities were observed, hypothesizing that medications and medical history contributed to enamel compromise and lesion formation. The patient received fillings to manage MIH lesions and alleviate dental hypersensitivity.

Results: dental treatment successfully managed MIH lesions, demonstrating effectiveness despite the presence of chronic medical conditions and corticosteroid use. These results underscore the importance of considering such factors in diagnosing and treating patients with MIH, with particular emphasis on the need for long-term management of dental hypersensitivity associated with this condition.

Conclusions: to better understand this correlation, further research is needed. Clarity on these relationships will help develop more targeted approaches to diagnose and treat MIH, ensuring optimal care for patients with similar medical histories.

OSTEOLYTIC LESION OF THE JAW BONES IN CHILDHOOD: A CASE REPORT

Brusamolino F[1], Laporta F[2], Zaninetti E[2], Pini VA[2], Maurino V[1,3]

[1]Unit of Pediatric Dentistry, Director: Prof. L. Tettamanti, ASST Settelaghi, Circolo Hospital, Varese, Italy
[2]School of Dentistry, Dean: Prof. L. Tettamanti, University of Insubria, Varese, Italy
[3]RTT Researcher, School of Dentistry, Dean: Prof. L. Tettamanti, University of Insubria, Varese, Italy

Aim: this study aims to describe a case of jaw cystic osteolytic lesion in pediatric age and its diagnostic & therapeutic management.

Methods: a 10-year-old boy presented at our dental clinic for pain in the fourth quadrant. At the intraoral clinical examination, a penetrating carious lesion was found on elements 4.6 and 8.5, which had previously undergone pulpotomy. Orthopantomography revealed an extensive unilobular mandibular osteolytic area in correspondence with the deciduous dental element 8.5 with involvement of the permanent counterpart 4.5 and the others contiguous elements. Cone Beam CT-scan subsequently confirmed the clinical suspicion of cystic lesion. Surgical enucleation of the lesion and of the attached permanent dental element 4.5 was then performed under general anesthesia. The histological examination revealed a dentigerous/follicular cyst associated with the crown of the permanent tooth 4.5.

Results: the surgery was successful with regular wound healing. The histological examination was mandatory to confirm the diagnostic hypothesis and make a differential diagnosis with other osteolytic mandibular lesions, especially with some odontogenic tumor such as ameloblastoma, which could present a similar appearance on imaging. A possible etiological association is often found with a periapical inflammatory process affecting the deciduous teeth overlying the permanent teeth involved.

Conclusions: it is essential not to underestimate any carious lesions and repeated infections affecting the deciduous dental elements, as they represent potential stimulus to cystic formation.

CHROMOSOME 16 DUPLICATION SYNDROME: ORTHOGNATHODONTIC ASPECTS

Borzì VG, Gueli A, Simone B, Novara F, Torre A, Maio A, Giuffrida M, Nucera R, Portelli M, Militi A

Department of Biomedical and Dental Sciences, Morphological and Functional Images, University of Messina, Messina, Italy

Aim: chromosome 16 duplication syndrome represents a condition characterized by a wide spectrum of abnormalities, involving multiple body districts. Affected patients present with IUGR or intrauterine growth retardation, hypotonia, psychomotor retardation, CNS malformations, cardiovascular congenital defects, and craniofacial malformations such as prominent frontal bosses. We report the clinical case of a 7-year-old patient, born at 36 weeks with plagiocephaly, suffering from psychomotor developmental delay. Genetic analysis (CGH-Array) revealed the presence of the 16q23.1 duplication involving the WWOX gene.

Methods: the patient underwent a clinical dental evaluation and a radiological diagnostic examination by the OPT.

Results: the clinical phenotype is characterized by asymmetrical face, prominent nose, thin lips, and low-set ears. On intraoral E.O., the child presents mixed dentition, multiple and extensive carious lesions on the deciduous elements. Orthodontic analysis reveals a second molar class, moderate crowding of the lower arch, midline deviation to the right, increased overbite, macrodontia of elements 1.1 and 2.1.

OPT examination shows rotation of elements 1.2 and 2.2, elements 1.3 and 2.3 are found to be in unfavorable eruptive position oriented in the buccal palate direction.

Conclusions: integration of clinical data and scientific evidence suggest that the Chromosome 16 duplication syndrome influences dentofacial development.

CLEIDOCRANIAL DYSOSTOSIS IN A PEDIATRIC PATIENT: A CASE REPORT

Merlini A[1,2], Scotti N[1], Defabianis P[1], Romanelli G[1,2], Laffi N[2]

[1]Department of Surgical Sciences, C.I.R. Dental School, Section of Pediatric Dentistry, University of Turin, Turin, Italy
[2]Department of Paediatric Odontostomatology and Orthodontics, IRCCS Istituto Giannina Gaslini, Genoa, Italy

Aim: Cleidocranial Dysostosis (CCD) is a rare autosomal dominant syndrome, caused by mutation of the RUNX2 gene, with an incidence of 1 in 1000000.
Individuals exhibit hypoplasia or aplasia of the clavicles, short stature, pelvic dysplasia with widening of the pubic symphysis, skeletal abnormalities of the skull, and oral cavity disorders, particularly delayed shedding of deciduous teeth, presence of supernumerary teeth associated with difficulties in spontaneous eruption of permanent teeth.
The purpose of this study is to present the clinical case of a child being treated at IRCCS G. Gaslini in Genoa.
Methods: 10 years old girl affected by CCD with complete deciduous dentition and severe delay in tooth shedding, supernumerary teeth in the upper incisor and lower premolar regions, maxillary hypoplasia, mandibular hyperplasia and tendency toward Class III dental malocclusion with 0 overjet and overbite.
Results: two treatment phases were performed; a surgical intervention under general anesthesia to expose the permanent upper central and lateral incisors, associated with orthodontic treatment using leaf expander.
After revaluation, a second intervention was performed to expose the lower canines and extract the lower deciduous and supernumerary teeth, associated with fixed orthodontic treatment.
Conclusions: CCD requires a multidisciplinary surgical and orthodontic approach; treatment duration is influenced by the need to revaluate the case due to the appearance of retention of permanent teeth and the need to extract supernumerary teeth.

DIGITAL DENTISTRY FOR THE ORTHODONTIC MANAGEMENT OF SPECIAL NEEDS PATIENT: CASE- REPORT

Corvino IC[1,2,3], Zumbo G[1], Rocchetti F[1], Amelina G[1], Tosti I[1], Nicoletta F[1], Di Giorgio G[1], Perrone A[1]

[1]Department of Oral and Maxillo-Facial Sciences, Sapienza, University of Rome, Rome, Italy
[2]Postgraduate School of Pediatric Dentistry, Dir. Prof. M. Bossù, Sapienza, University of Rome, Rome, Italy
[3]Pediatric Dentistry Unit Dir. Prof. A. Polimeni, Sapienza University of Rome, Rome, Italy

Aim: This case report will describe a digital workflow for the orthodontic management of a special needs patient.
Methods: A 8-year-old male affected by Autistic Spectrum Disorder with oppositional defiant disorder was referred to the Pediatric Dentistry Unit of Policlinico Umberto I of Rome. Facial analysis revealed an oval face with a normal profile. Dental analysis showed mixed dentition in a molar Class I on both sides, canine II Class on the right and canine I Class on the left and mild crowding and dental rotations. Overbite and overjet were mildly increased. The presence of an upper mesiodens with delayed eruption of the element 2.1 was evaluated by an orthopantomography. The examination was supplemented with a lateral cephalogram.
Result: After the mesiodens extraction, the digital impression was successfully taken by a Medit I700 scanner, software v. 2.5.7 (Medit, Seoul, Republic of Korea). On the upper arch, a CAD-CAM customized trans-palatal bar was cemented to the upper first permanent molars with brackets on the incisors to aid eruption and rotation of 2.1. On the lower arch, a removable space maintainer was rapidly replaced by a CAD-CAM customized lingual arch due to the patient's lack of cooperation.
Conclusions: Improvements in digital dentistry have synergized the speed, the predictability, and favorable outcomes in the oral management. This case report demonstrates that the digital workflow is advantageous especially for the healthcare of special needs patients, resulting in a significantly higher patient comfort and compliance.

CONGENITAL HEMANGIOMA MANAGEMENT: A CASE REPORT

Pisacreta F[1], Marino A[2], Natoli V[2], Pinna M[2], Denotti G[2], Casu C[2]

[1]Department of Surgical Science, Faculty of Dentistry, University of Cagliari, Cagliari, Italy
[2]Department of Surgical Science, School of Pediatric Dentistry, Cagliari, Italy

Aim: to report a case of congenital hemangioma associated with benign migratory glossitis.
Introduction. Hemangiomas are the most common pediatric benign tumor. Congenital hemangiomas are clinically present as fully developed lesions at birth and rapidly involute during the first year of life or may never show involution. Rapidly Involuting Congenital Hemangiomas are present at birth, as red-purple color lesions and undergo a rapid regression phase, completely disappear by 12-18 months of age. Non Involuting Congenital Hemangiomas are also present at birth, as pink or purple colored plaque-like lesion and do not show a regression phase and grow proportionately with the growth of the child.
Case report: a 3-year-old girl, presenting congenital hemangioma, exhibits a red color lesion on the lower part of the right jaw and at the intraoral examination, an exophytic lesion on right cheek mucosa, perceptible at the palpation of the tissue. The lesion does not regress after birth, but it extends. The girl also presented an erosive-erythematous lesion on tongue surface, for these reasons the Pediatrician requested our evaluation. After intraoral exam a diagnosis of benign migratory glossitis was made. An ultrasound examination, including echo doppler was prescribed before the laser photocoagulation, proposed by pediatrician.
Conclusions: the interaction between Pediatric Dentist, Pediatrician and other medical figures such as radiologist is a valuable strategy for the management of the case, in order to decide the best treatment.

OROFACIAL MANIFESTATIONS OF CRISPONI SYNDROME: A CASE SERIES

Montali L, Guglielmi F, Alessandri-Bonetti A, Faustini A, Fratto G, Gallenzi P

A. Gemelli Foundation IRCCS - Catholic University of the Sacred Heart, Rome, Italy

Aim: Crisponi syndrome is a rare autosomal recessive disease involving the CRLF1 gene, characterized by dysfunction of thermoregulatory processes. With fewer than 30 cases reported globally, this study aims to describe its clinical orofacial characteristics.
Methods: twelve patients with a mean age of 19.7±11 years, 58% female, affected by Crisponi syndrome were referred to the Pediatric Dentistry Clinic in a large hospital known for its Rare Disease Center. Extra-oral examination was performed focusing on anteverted nostrils, long filter and wrinkled lips. On intraoral exam, data regarding foamy hypersalivation, impaired swallowing, oral respiration, micrognathia, reduced buccal opening, early caries and orthodontic parameters were collected. Intraoral and extraoral photos were taken for each patient.
Results: anteverted nostrils, long filter and wrinkled lips were found in 17%, 42% and 50% of patients respectively. All patients showed foamy hypersalivation, and 75% presented atypical swallowing. Early caries was identified in 58% of patients. 75% of patients presented with orthognathic profile with coincident midlines; and Angle class I was observed in 60% of patients. 91% presented with contracted upper jaw, whereas the mandible was contracted in 75%. Inferior crowding was present in 67% of cases.
Conclusions: the present study, which analyzed 12 of the 30 documented cases affected by Crisponi syndrome, provides an important descriptive analysis of their orofacial features. Foamy hypersalivation and contracted upper jaw were the most common characteristics observed.

LESH NYHAN SYNDROME: ORAL COMPLICATIONS AND THERAPEUTIC OPTIONS

Telini G[1,2], Del Buono C[2], Capurro C[2], Laffi N[2], Allam A[1], Cagetti MG[1]

[1]Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy
[2]Department of Paediatric Odontostomatology and Orthodontics, IRCCS Istituto Giannina Gaslini, Genoa, Italy

Aim: Lesh Nyhan Syndrome (LNS) is a rare X-linked recessive genetic disorder affecting males. The aim of this paper is to present LNS and describe its oral complications and treatment options.

Methods: asystematic literature review was performed. In addition, clinical cases of LNS treated at the IRCCS G. Gaslini Hospital in Genoa are presented.

Results: LNS is caused by inactivating mutations in the HPRT gene, resulting in an overproduction of uric acid. Symptoms are gouty arthritis, sand-orange colored urine and urinary tract obstruction, neurological and behavioural disorders such as psychomotor retardation, hypotonia and involuntary movements.
LNS patients often exhibit involuntary Self-Injurious Behavior (SIB); with tooth eruption, episodes of lip, tongue and finger biting up to amputation can occur. As illustrated in the proposed cases, protective devices can help patients to reduce the severe discomfort caused by self-induced trauma, improving their quality of life.
Because of the oral complications that affect LNS patients, the dentist plays an important role in the prevention of SIB. While in the past the only treatment that was implemented was tooth extraction, today conservative approaches, such as the use of customized protective bytes, can prevent severe oral and skin injuries to LNS patients.

Conclusions: LNS patients should be followed by a multidisciplinary team including neurologist, physiotherapist, psychologist, and dentist; in particular, the dentist should implement in these patients the use of customized devices that prevent oral and skin injuries.

SEVERE INFRAORBITAL ODONTOGENIC PHLEGMON IN PEDIATRIC PATIENTS: A CASE SERIES

Carminucci F, Nardella M, Fanelli G, Fricelli I, Mongelli A, Limongelli L, Corsalini M

Interdisciplinary Department of Medicine, University of Bari Aldo Moro, Bari, Italy

Aim: abscessess and phlegmon among pediatric population represent some of the most important consequences of odontogenic disease. The spread of the infection can have different evolutions. As regards phlegmon, the infection does not have a precise anatomical demarcation, and the soft tissues are affected. In contrast, abscess is a collection of infected material in a newly formed cavity. Between these infections, of particular importance due to its severity, is the infraorbital abscess of odontogenic origin.

Methods: patients referred in the last year to the pediatric Dentistry Department of U.O.C. of Odontostomatology, University of Bari, were included. We analyzed in particular those that showed infraorbital localization of the infection. For each one we performed intraoral and extraoral examination, RX-OPT, when necessary intraoral RX-ray and CBCT to discover the cause of the infection.

Results: starting from a database of 80 patients who came to our UOC, we selected 5 who had an abscess with infraorbital localization of odontogenic origin. Of these cases 3 were males and 2 females. The group of patients had an abscess origin starting from the fourth and fifth elements of the upper arch.

Conclusions: this type of clinical situation requires multidisciplinary support from the pediatric dentist, pediatrician and surgeon. All selected patients underwent the same therapeutic procedure which included antibiotic therapy, extractions and drainage.

DENTOSKELETAL CONSEQUENCES OF TARDIVE APPROACH TO SHORT LINGUAL FRENULUM

Montanaro R, Patano A, Rubino CA, Timeo S, Gnoni E, Romano R, Limongelli L, Corsalini M

Interdisciplinary Department of Medicine, University of Bari Aldo Moro, Bari, Italy

Aim: ankyloglossia is a congenital anomaly characterized by an abnormally short lingual frenulum, which may force a low tongue position impairing its movements and functions. The early undiagnosed and untreated frenulum abnormalities lead to the tongue thrusting forward against the anterior body of the mandible, contributing to skeletal Class III malocclusion. This study aims to report a case series of patients with short lingual frenulum who did not undergo treatment in the early years of life and developed a Class III disharmony.

Methods: patients referred to the Pediatric Dentistry Department of C.O.U. of Odontostomatology, University of Bari, in the last 5 years were included. Medical records were reviewed to assess the length of the lingual frenulum and the type of malocclusion.

Results: 33 participants were included, 17 males and 16 females, mean age 7 years. The group of patients had an average lingual frenulum length of 2 cm, and cephalometric analysis revealed the presence of a Class III skeletal malocclusion.

Conclusions: the study supports the hypothesis that the lack of early detection and appropriate management of frenulum anomalies may favour Class III malocclusion which would require a multidisciplinary approach by pediatric dentist, orthodontist, surgeon, and speech therapist. However, further studies are needed in order to investigate the potential association between short lingual frenulum and Class III.

TWO CASES OF INDIRECT CONSERVATIVE MANAGEMENT FOR THE DECIDUOUS LOWER SECOND MOLARS

Torchia V[1], Zaninetti E[2], Rimoldi V[2], Brusamolino F[1], Maurino V[1,3]

[1]Unit of Pediatric Dentistry, Director: Prof. L. Tettamanti, ASST Settelaghi, Circolo Hospital, Varese, Italy
[2]School of Dentistry, Dean: Prof. L. Tettamanti, University of Insubria, Varese, Italy
[3]RTT Researcher, School of Dentistry, Dean: Prof. L. Tettamanti, University of Insubria, Varese, Italy

Aim: this study aims to outline an alternative treatment approach involving the use of indirect restorations (inlays) on the carious deciduous lower second molars in two patients with agenesis of the corresponding permanent teeth 4.5 and 3.5.

Methods: both cases entail two pediatric patients presenting at our dental clinic with carious lesions on deciduous teeth 8.5 and 7.5 and agenesis of permanent teeth 4.5 and 3.5. Following comprehensive clinical and radiographic assessments, the affected teeth underwent pulpotomy. Subsequently, an indirect restoration was implemented through a build-up and an inlay procedure to restore the morphology and functionality of the deciduous tooth.

Results: the pulpotomy treatment coupled with indirect reconstruction exhibited effectiveness in preserving the functionality of teeth (8.5-7.5) and maintaining the interdental space, thereby fostering the harmonious development of dental arches.

Conclusions: these clinical instances underscore the significance of conservative dentistry interventions, both direct and indirect, aimed at ensuring the prolonged and efficient maintenance of compromised dental elements, specifically deciduous molars. The ultimate aim is to promote the proper development of dental arches in patients afflicted with destructive carious lesions and/or dental anomalies.

INDIRECT RESTORATIONS MADE USING DIGITAL WORKFLOW IN PEDIATRIC DENTISTRY: A CLINICAL TRIAL

Fumei ARA, D'Anteo F, Pelissero I, Re D, Aiuto R

Department of Biomedical, Surgical and Dental Sciences, University of Milan, Istituto Stomatologico Italiano, Milan, Italy,

Aim: this clinical trial aims at comparing the technique and clinical success of 3D printed indirect restorations with those of traditional direct ones in pediatric dentistry.

Methods: the inclusion criteria were the cooperativeness of the patient and a treatable tooth that is not due to exfoliate soon and is either vital or has been endodontically treated. The patients in the intervention arm were treated using indirect restorations via digital workflow, while the control group received traditional direct composite restorations. The digital workflow implemented in the intervention arm was designed as follows. First, the tooth cavity was prepared and a digital impression obtained using an intraoral scanner. The indirect inlay was then 3D printed. If the dam could be placed properly, the traditional adhesion system was employed to cement the inlay, if not, a semi-adhesive system was preferred.

Results: while the study has limitations, the cases reported show that the survival rate of the restorations in the intervention group were comparable to those of the control group, with the advantage of the treatment being faster and more comfortable for patients.

Conclusions: over the last few years, digital workflow has been progressively implemented in dentistry. Its employment in pediatric dentistry allows for more predictable, durable and fast restorations, while also improving cooperativeness of the young patients. Therefore, 3D printed restorations are a valid alternative to preformed crowns. Their future implementation in everyday pediatric practice is desirable.

BULK-FILL COMPOSITES IN PEDIATRIC DENTISTRY: LONG-TERM SURVIVAL OF POSTERIOR RESTORATIONS

Ludovichetti FS, Rizzato A, Lucchi P, Stellini E, Gallo M, Favero R, Venturin G, Zuccon A, Mazzoleni S

Dentistry Section, Department of Neurosciences, University of Padua, Padua, Italy

Aim: this study seeks to assess the long-term survival of bulk-fill composite restorations in pediatric dentistry through a five-year follow-up period.

Methods: in this research, 198 participants spanning from infancy to 12 years old received a total of 673 class II restorations on their primary first molars (1M) and second molars (2M). These procedures were administered by trainees from the Paediatric Dentistry Department, employing various isolation methods. The performance of bulk-fill composite restorations was scrutinized throughout a five-year monitoring period, with data meticulously gathered by a sole investigator.

Results: following a five-year period, evaluation was conducted on 177 individuals and 611 restorations. Notably, primary second molars exhibited superior retention rates compared to first molars, alongside fewer instances of marginal dyschromies and secondary caries formation. Conversely, primary first molars and lower second molars exhibited a comparatively higher overall failure rate. Bulk-fill composites exhibited notably positive attributes in terms of retention, longevity, and marginal dyschromies.

Conclusions: bulk-fill composites present themselves as promising materials in the realm of pediatric dentistry due to their manageable application and advantageous characteristics. However, further investigation is warranted to compare high and low viscosity bulk-fill composites and ascertain the impact of various factors on restoration efficacy.

ASSESSING 38% SDF FOR CARIES ARREST: LABORATORY PARAMETERS AND CLINICAL EFFICACY

Thaqi E, Mazzitelli C, Incerti Parenti S, Florenzano F, Bonetti G, Mazzoni A, Breschi L, Maravic T

Department of Biomedical and Neuromotor Science - DIBINEM, University of Bologna, Bologna, Italy

Aim: to evaluate the influence of an ammonia-based 38% Silver Diamine Fluoride (SDF) solution on bond strength of a universal adhesive to dentin and its clinical performance.

Methods: pediatric patients with caries lesions were admitted and SDF solution was applied on the caries lesions (comprising 1-9 teeth per patient). The patients were recalled on 3-month intervals follow-up on the stability of the lesions and were advised to report to the clinic in case of complications (pain, swelling). Furthermore, extracted human teeth were treated with SDF and restored with a universal adhesive+-composite resin and subjected to scanning electron microscope and chemical analysis of the surface (SEM-EDX) for traces of silver within the hybrid layer at baseline, 1yr and 2yrs of aging in artificial saliva.

Results: a total of 131 teeth were treated in 42 patients (59% boys and 41% girls; mean age 5.7 years). The most commonly treated teeth were primary molars (90%), followed by permanent molars (6%) and primary canines (4%). In 19% of the patients, SDF was applied more than once. Only 4 teeth presented complications (abscess/fistula) and were extracted. The chemical composition evaluation demonstrated that silver ions can be traced in the hybrid layer even after 2 years of aging.

Conclusions: SDF treatment seems to be an efficient and non-invasive treatment option for pediatric patients with multiple carious lesions, arresting caries and preventing complications to the most part. This is possibly due to the antimicrobial effect of silver particles.

PREDICTING UNCOOPERATIVE BEHAVIORS FROM PHYSIOLOGICAL DATA IN PEDIATRIC DENTAL PATIENTS

Duma P[1], Roccon A[1], Pistollato E[2], Bacci C[1], Zanette G[1], Queirolo L[1]

[1]Clinical Dentistry, Department of Neurosciences, University of Padua, Padua, Italy
[2]Department of Medicine Section Anesthesiology, University of Padua, Padua, Italy

Aim: this study evaluates the possibility of predicting uncooperative behaviors before and during pedodontics procedures, bridging the gap between anxiety, uncooperative behaviors, and physiology in pediatric dental patients on the dental chair.

Methods: measures were collected from 33 pediatric dental patients attending the Dental Clinic of the University of Padua. Electrodermal Activity (EDA), a sympathetic index, Heart Rate (HR), and Heart Rate Variability (HRV), a parasympathetic index, before, during and after pedodontics visits were recorded. Modified Children Dental Anxiety Scale (MCDAS) was also administered.

Results: 7/33 pediatric dental patients showed uncooperative behaviors but of these, only 2 patients reached a MCDAS ≥18, the validated cut-off suggested by the literature for uncooperative behaviors. Kruskall Wallis, comparing cooperative and uncooperative pediatric dental patients according to MCDAS showed no difference between the two groups, $p = 0.866$. While Skin conductance response % (derived from EDA), discerned between cooperative and uncooperative children ($p < 0.05$). A machine learning technique was applied using a logistic regressor with a binary response: cooperative behavior, YES or NO. The first minute and 30 seconds HRV and Skin conductance response % levels, when children are on the dental chair, were selected as the most important predictors of uncooperative behaviors. They showed a negative correlation (Pearson -0.35, $p < 0.05$, $DF = 31$) and together they categorize with the 90% accuracy uncooperative or cooperative behaviors.

Conclusions: MCDAS cutoff appears to be inadequate in screening potential uncooperative behaviors. A 1 minute and 30 seconds sympathetic and parasympathetic evaluation appears to be superior in predicting uncooperative behaviors and could represent a powerful screening tool.

PREVALENCE OF OBSTRUCTIVE SLEEP APNEA RISK IN PATIENTS WITH AUTISM SPECTRUM DISORDERS

Faustini A, Alessandri-Bonetti A, Nuzzo B, Malatesta A, Gallenzi P

A. Gemelli Foundation IRCCS, Catholic University of the Sacred Heart, Rome, Italy

Aim: recent studies suggest a possible association between Autism Spectrum Disorders (ASDs) and some Sleep Disorders Breathing (SDB). Obstructive Sleep Apnea (OSA) is the most severe form of SDB. This study aims to assess the prevalence of OSA risk in pediatric patients with ASD.

Methods: upon acceptance by the Ethics Committee, consecutive 21 pediatric patients with ASD evaluated at the Pediatric Dentistry Clinic in a large university-affiliated hospital were screened for OSA through the Pediatric Sleep Questionnaire (PSQ). Subjects were compared to healthy patients matched for gender and age. The Fisher test was used to compare groups.

Results: of 21 ASD patients (10,3±3,3 y/o, 76,2% males), 57% presented with an increased risk of OSA, compared to 10% of the control group ($p = 0.0025$). Even after controlling for the PSQ section belonging to the behavioral component, ASD patients still presented significantly higher risk of OSA compared to the control group (42.8% *vs* 4.8%; $p = 0.0089$).

Conclusions: this study shows that patients with ASD present a higher risk of OSA than healthy patients. Future studies are encouraged to observe if OSA treatment provides benefits on ASD manifestation.

ORAL HEALTH-RELATED QUALITY OF LIFE IN BONE DYSPLASIA PEDIATRIC PATIENTS

Ninivaggi R, Bocca N, Destefanis C, Bello L, Defabianis P

Pediatric Dentistry section, Dental School Lingotto, Department of Surgical Sciences, University of Turin, Turin, Italy

Aim: Bone Dysplasia (BD) includes genetic disorders resulting in abnormalities in bone development, potentially affecting teeth, leading to a negative impact on the Oral Health-Related Quality of Life (OHRQoL) of individuals. This study aimed to explore the OHRQoL of BD pediatric patients investigating potential influences of demographic factors and pain on OHRQoL.

Methods: patients aged 8-14 years with BD and gender-matched healthy control were recruited at the Section of Pediatric Dentistry at the Dental School of the University of Turin. Questionnaires assessing OHRQoL were administered, including the Oral Health Impact Profile-14 (OHIP-14), the Child Oral Health Impact Profile (COHIP), and the Short Form of the Child Perceptions Questionnaire (SF-CPQ). Statistical analysis was conducted.

Results: the study included 40 bone dysplasia patients (21 males, mean age 10.75±4.1 years) and 40 healthy controls (20 males, mean age 10.30±4.2 years). BD patients showed statistically significant lower overall scores of all the questionnaires compared to controls (all $p < 0.001$). No statistically significant gender-related differences were observed; adolescents aged 11-14 years experienced worse perception in the emotional and social well-being SF-CPQ domains and in the peer interaction COHIP domain compared to the younger age group.

Conclusions: pediatric patients with BD experience poorer OHRQoL than their healthy peers, independent of age and gender, suggesting that oral and dental issues may be of special importance for the socio-psychological well-being of these growing individuals.

ORAL HEALTH-RELATED QUALITY OF LIFE OF PEDIATRIC BECKWITH–WIEDEMANN SYNDROME PATIENTS

Bocca N, Ninivaggi R, Destefanis C, Bello L, Defabianis P

Pediatric Dentistry section, Dental School Lingotto, Department of Surgical Sciences, University of Turin, Turin, Italy

Aim: this cross-sectional study aimed to compare the Oral Health-Related Quality of Life (OHRQoL) of children and adolescents with and without Beckwith-Wiedemann Syndrome (BWS), and to identify the most significant symptoms associated with macroglossia.

Methods: participants included both male and female BWS patients aged two to sixteen years, as well as healthy age- and gender-matched controls, who were recruited from the Section of Paediatric Dentistry at the University of Turin. To assess OHRQoL, a trained interviewer administered the validated Italian versions of the Oral Health Impact Profile -14 (OHIP-14) and GOSH questionnaires to the parents of the enrolled subjects. Additionally, parents of BWS patients who had undergone Tongue Reduction Surgery (TRS) filled out a supplementary questionnaire related to surgery. Statistical analysis was conducted.

Results: questionnaires were completed by 48 BWS patients and 48 control subjects. The total OHIP-14 score and the dimensions of oral function (p: 0.036) and psychosocial impact (p: 0.002) were significantly higher in the BWS group compared to healthy controls. OHRQoL was not influenced by gender or age but was worse in BWS patients who had undergone TRS.

Conclusions: the study findings indicate that BWS children and adolescents experienced a lower OHRQoL compared to their healthy peers, especially those who had undergone TRS. This may be attributed to persistent malocclusions and speech difficulties in treated patients.

INFLAMMATORY BOWEL DISEASES AND ORAL HEALTH: SURVEY ON CHILDREN AND FAMILIES' KNOWLEDGE

Comisso I[1], Vignaduzzo E[2], Ottaviani G[1], Luppieri V[1,3], Cadenaro M[1,3]

[1]Department of Medical Sciences, University of Trieste, Trieste, Italy
[2]Private practice
[3]Institute for Maternal and Child Health - IRCCS Burlo Garofolo, Trieste, Italy

Aim: to evaluate pediatric patients' and families' knowledge and awareness about the relationship between Inflammatory Bowel Diseases (IBD) and Oral Health (OH).

Methods: this cross-sectional study was based on an anonymous 30-question questionnaire (addressed to >14-year patients or parents of <14-year patients) divided into 4 domains: general data, IBD, OH and IBD and OH, submitted to patients and families attending the Pediatric Unit of the Institute for Maternal and Children Health–IRCCS Burlo Garofolo, Trieste. Non-Italian-speaking subjects were excluded. Descriptive data analysis was performed.

Results: the results presented are preliminary. 26 patients (54% males, mean age 12.9 years) were included. 52% of patients received the IBD diagnosis before the age of 10. Among IBD, the prevalence of ulcerative colitis was 61.5% and Chron's disease was 30.9%. All participants had regular gastroenterological checkups and 96.1% were on drug therapy. 96.1% were regularly followed up by their dentist and the majority considered their oral hygiene "good". As for oral conditions potentially associated with IBD, 13% of subjects reported frequent dry lips, 8% occasional dysphagia and 4% altered taste perception and tongue and oral mucosa itching/burning. Undergoing regular gastroenterological and dental visits was considered "very important" by 80.8% and 30.8% of subjects, respectively.

Conclusions: IBD children and families need to be educated on the relationship between IBD and OH. Improving the collaboration between gastroenterologists and pediatric dentists is essential.

USE OF A GLASS IONOMER SEALANT IN HYPOMINERALIZED FIRST PERMANENT MOLARS: 12-MONTHS RESULTS

Tozzi G[1], Luppieri V[1,2], Cadenaro M[1,2]

[1]Department of Medical Sciences, University of Trieste, Trieste, Italy
[2]Institute for Maternal and Child Health - IRCCS Burlo Garofolo, Trieste, Italy

Aim: Main: to evaluate the survival rate of a Glass Ionomer (GI) sealant in hypomineralized First Permanent Molars (FPMs) at 12 months. Secondary: to assess the sealant clinical status, Post-Eruptive Breakdown (PEB) and at-home and in-office hypersensitivity.

Methods: intact hypomineralized FPMs of patients aged 6-10 years were sealed using a GI sealant (GC Fuji Triage) and assessed at T_0 = baseline, T_1 = right after treatment, T_2, T_3, T_4 = 3, 6, 12-months after treatment, respectively. United States Public Health Service modified criteria were used to assess the sealant clinical status. At-home hypersensitivity at mechanical and thermal stimuli was scored as yes/no; Wong-Baker Faces Pain Rating Scale (WBFPRS) was used to register hypersensitivity at in-office air spray stimulation. Sample size: 49 FPMs ($\alpha = 0.05$, $\beta = 0.90$). Descriptive data analysis was permormed.

Results: 28 FPMs (16 partially and 12 fully erupted) were included. At T_4 (20 FPMs), the sealant survival rate was 100% and, 20, 19 and 18 FPMs were scored as "A" for sealant marginal adaptation, pigmentation, surface roughness and anatomic form, respectively. No secondary caries was diagnosed. 4 PEB were detected. At T_4 *vs* T_0, at-home and in-office hypersensitivity was improved: 3 *vs* 8 hypersensitive FPMs, respectively; WBFPRS medium values were 2.3 *vs* 2.6.

Conclusions: the use of a GI sealant in hypomineralized FPMs seemed to be a simple and effective technique in preventing secondary caries and reducing hypersensitivity, but did not prevent PEB.

IMPACT OF MOLAR INCISOR HYPOMINERALIZATION ON CHILDREN'S QUALITY OF LIFE

Silva Schott S, Lardani L, Capotosti I, Lorello M, Maccarrone L, Carli E, Giuca MR

Department of Surgical Medical Molecular Pathology and Critical Area, Dental and Oral Surgery Clinic, Unit of Pediatric Dentistry, University of Pisa, Pisa, Italy

Aim: to demonstrate an association between Molar Incisor Hypomineralization (MIH) and a reduction of children's Oral Health-Related Quality of Life (OHRQoL) by comparing OHRQoL of healthy and MIH-affected children, and to assess the difference of OHRQoL impairment in relation to the severity of the MIH lesions.

Methods: a cross-sectional study was conducted from a cohort of 100 patients, aged between 11-14 years divided into two groups: 50 patients (27 males and 23 females) that showed MIH (test group) and 50 subjects (23 males and 27 females) which did not show MIH (control group). The assessment of MIH presence and severity followed EAPD's criteria. Children answered the Italian version of the Child Perceptions Questionnaire (CPQ11-14) to evaluate their OHRQoL. Mean scores from the questionnaires were calculated for both groups: test and control, and for the severity subgroups in the test group: mild/severe. Statistical analysis of the mean scores was made using the Student's T-test. Significance level was set at $p < 0.01$.

Results: mean scores of the CPQ11-14 in the test group were significantly higher than those of the control group (25.61±14.69 *vs* 8.76±5.37; $p = 0.001$) showing that children with MIH have a more impaired OHRQoL. A greater negative impact was seen in severe vs mild MIH (31.94±13.60 *vs* 21.53±14.33; $p = 0.0003$).

Conclusions: MIH negatively impacts the OHRQoL of children affected by it when compared with healthy children. The impairment of OHRQoL is greater in severe forms of MIH.

ORAL HEALTH STATUS AMONG CHILDREN WITH DOWN SYNDROME

Macrì F, Bianco E, Bennardo F, Aquino MV, Pasqua F, Allocchi A, Bertucci IE, Tarantino G, Antonelli A, Barone S, Giudice A

Department of Health Sciences, School of Dentistry, University Magna Graecia of Catanzaro, Catanzaro, Italy

Aim: the objective of this study was to assess the impact of Down Syndrome on oral health status.

Methods: over the course of one year, a cross-sectional study was conducted on a total of 105 patients with Down Syndrome, recruited from the pediatric department of the University of Magna Graecia of Catanzaro. The oral health status of patients included was assessed by evaluating the Plaque Index (PI), the Gingival Bleeding Index (GBI), the Decayed, Missing and Filled Teeth index (DMFT) and the presence of dental anomalies.

Results: among the reference sample, parents of 23 children declined dental visits, deeming them less important than other activities; 12 were uncooperative. However, dental evaluations were successfully conducted in the remaining 70 patients. It was found that children older than 12 years exhibited significantly higher values of PI, GBI and DMFT compared to younger syndromic children ($P < 0.01$). Further, individuals with lower compliance levels and poorer oral hygiene displayed significantly higher PI ($P < 0.001$), GBI ($P < 0.04$) and DMFT ($P < 0.020$) values than those with better compliance and oral hygiene.

Conclusions: children with Down Syndrome should undergo regular dental visits and periodic checks, particularly those who exhibit poor compliance and oral hygiene. Proper oral hygiene management and regular monitoring by healthcare professionals can mitigate risks and preserve dental health, thus enhancing the overall quality of life.

ENAMEL DEFECTS IN CHILDHOOD CANCER SURVIVORS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Allam A, Camoni N, Mbanefo S, Manti A, Cagetti MG

Department of Biomedical, Surgical and Dental sciences, University of Milan, Milan, Italy

Aim: the systematic review and meta-analysis (Prospero CRD42023472016) aimed to assess the impact of anti-neoplastic therapy on the prevalence of both qualitative and quantitative enamel defects in Childhood Cancer Survivors (CCS) compared to healthy children.

Methods: four electronic databases (PubMed, Embase, Scopus, Google Scholar) were searched up to February 2024 for studies reporting on enamel defects in children who underwent any type of anti-neoplastic therapy. ROBINS-I tool was used for risk of bias assessment. Included studies with comparable outcomes underwent random effects meta-analysis using R®4.1.

Results: 807 records were retrieved, 74 studies were selected based on title and abstract, 21 full texts were included and 8 were used for meta-analysis. The prevalence of qualitative defects in CCS ranged from 8.8% to 67.0%, while for controls from 9.7% to 35.0%; for quantitative defects in CCS ranged from 3.0% to 76.7%, while in controls from 1.0% to 44.0%. The meta-analysis showed an overall effect size estimate for qualitative defects of 1.30 [95% CI 0.95 - 1.65] and 0.98 [95% CI 0.91-1.06] for quantitative defects. A statistical analysis was performed to determine if age at therapy initiation and enamel defects were correlated; results lacked statistical significance due to insufficient data.

Conclusions: CCS showed higher prevalence of enamel defects, both qualitative and quantitative, compared to healthy children. The meta-analysis showed a robust association between childhood cancer survivorship and qualitative defects and a moderate one in quantitative defects.

ORAL FUNCTIONS IN CRANIOFACIAL SKELETAL GROWTH

Ferrante L

Complex Operative Unit of Odontostomatology Director: Prof. G. Favia. Specialization School in Orthognatodontics, Director: Prof. F. Inchingolo, Interdisciplinary Department of Medicine D.I.M., University of Bari Aldo Moro, Bari, Italy

Aim: this study highlights the importance of proper lingual and respiratory function in craniofacial skeletal growth, exploring the effects of oral function on body posture. It analyzes the causes of dental and skeletal malocclusions, going beyond the simple assessment of dental and bone classes. Examines the role of orofacial muscles in determining osteo-dental changes and explores the interplay between genetic and epigenetic factors in the occurrence of malocclusions and their treatment.
Methods: review of scientific literature related to malocclusions and the correlation between oral function, craniofacial growth, and posture. Study of the muscular and neurological mechanisms involved in tongue posture, swallowing, and cranial activity.
Results: nasal breathing and correct swallowing promote harmonious development of the face and facial bones.
Conclusions: proper oral functions are crucial for correct posture and proper skeletal and dental development. Abnormalities in lingual and respiratory function can lead to musculoskeletal, neurological, hormonal, and cardiac problems. It is critical to ensure adequate nasal breathing in children to promote proper bone growth. Dental malocclusions are the result of multiple factors: muscle dysfunction, spoiled habits, genetic and epigenetic factors. Orthodontic treatment has to harmonize the stomatognathic system with the neurological system, considering the relevant role of the tongue in the overall health of the individual.

CELIAC DISEASE-RELATED ENAMEL DEFECTS: A SYSTEMATIC REVIEW

Ciocia A, Ferrara I, Netti A, Viapiano F, Di Venere D, Inchingolo AD, Palermo A, Morolla R, Inchingolo F

Complex Operative Unit of Odontostomatology, Director: Prof. G. Favia, Specialisation School in Orthognatodontics, Director: Prof. F. Inchingolo, Interdisciplinary Department of Medicine D.I.M. University of Bari Aldo Moro, Bari, Italy

Introduction: this systematic review aims to elucidate the intricate correlation between Celiac Disease (CD) and Dental Enamel Defects (DED), exploring pathophysiological mechanisms, oral health implications, and a dentist's role in early diagnosis.
Methods: following PRISMA guidelines, a comprehensive search from 1 January 2013 to 1 January 2024 across PubMed, Cochrane Library, Scopus, and Web of Science identified 153 publications. After exclusions, 18 studies met the inclusion criteria for qualitative analysis. Inclusion criteria involved study types (RCTs, RCCTs, case series), human participants, English language, and full-text available.
Results: the search yielded 153 publications, with 18 studies meeting the inclusion criteria for qualitative analysis. Notable findings include a high prevalence of DED in CD patients, ranging from 50 to 94.1%. Symmetrical and chronological defects, according to Aine's classification, were predominant, and significant associations were observed between CD severity and enamel defect extent.
Conclusions: the early recognition of oral lesions, particularly through Aine's classification, may signal potential CD even in the absence of gastrointestinal symptoms. Correlations between CD and dental health conditions like Molar Incisor Hypomineralization (MIH) emphasize the dentist's crucial role in early diagnosis. Collaboration between dentists and gastroenterologists is essential for effective monitoring and management. This review consolidates current knowledge, laying the groundwork for future research and promoting interdisciplinary collaboration for improved CD-related oral health outcomes. Further large-scale prospective research is recommended to deepen our understanding of these issues.

PEDIATRIC ORAL PATHOLOGY IN THE PATIENT WITH GLUTEN INTOLERANCE

Casamassima L, Chieppa S, Inchingolo AM, Inghingolo AD, Dipalma G, Palermo A, Malagnino G, Di Venere D, Inchingolo F

Complex Operative Unit of Odontostomatology, Director: Prof. G. Favia, Specialisation School in Orthognatodontics, Director: Prof. F. Inchingolo, Interdisciplinary Department of Medicine D.I.M. University of Bari Aldo Moro, Bari, Italy

Aim: celiac disease is a hereditary autoimmune systemic disease caused by gluten intolerance. Its clinical manifestations are very varied, but mainly associated with the digestive system, although not limited to it. The prevalence of this disease is around 1%, although it varies a lot between countries. Among the oral manifestations of the disease are enamel defects, delayed tooth eruption, recurrent aphthous ulcers, cavities, etc. The main objective of this work is to describe the oral pathologies most commonly associated with gluten intolerance in children.

Methods: with this aim, a search was performed in scientific articles databases Medline and PubMed. 25 publications were selected, according to predefined selection criteria, to discuss their results.

Results: 51.4% of celiac patients presented enamel defects, in contrast to 14% in healthy children; mainly in incisors, canines and molars. Recurrent aphthous ulcers showed a mean prevalence of 30.8% for celiac patients and 7.9% for healthy patients. Regarding the delayed tooth eruption, children intolerant to gluten showed 35.2%, while healthy children showed only 11.5%. Defects in enamel are the most studied of all oral manifestations of gluten intolerance and are considered the only oral pathology that manifests itself in a specific way in celiac disease.

Conclusions: the prevalence values of the most common oral manifestations associated with celiac disease are considered high, representing almost three and four times the ones observed in healthy patients.

ORAL HEALTH STATUS IN AUTISTIC CHILDREN: A LITERATURE REVIEW

Sartori C, Fazio C, Racco M, Stanganelli GM, Vaccara C, Maio A, Torre A, Ciancio E, Portelli M, Militi A

School of Dentistry, Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy

Aim: the purpose of this literature review was to assess the oral health status in the autistic child, watching out for the presence of dental caries and periodontal disease.

Methods: the literature search was conducted on PubMed, Scopus, Medline, BASE, Science Citation Index, Science Direct, Web of Science using pediatric dentistry, autistic spectrum disorder, periodontal disease, caries as keywords, covering the last twenty-four years. Out of one hundred articles, thirteen were selected as eligible.

Results: from the analysis of the studies, the periodontal indices PI (Plaque Index) and GI (Gingival Index) and the DMFT were higher in autistic patients.

Conclusions: children with autism have an increased risk of developing dental caries and periodontal disease, mainly due to difficulties in oral hygiene management. A bias was also detected due to the failure to stratify the sample by age group, the failure to indicate the degree of autism and the lack of a specific differential approach for autistic patients.

PEDIATRIC OSAS: THE ROLE OF THE DENTIST FROM EARLY DIAGNOSIS TO TREATMENT

Romanelli G[1,2], Scotti N[1], Defabianis P[1], Merlini A[1,2], Laffi N[2]

[1]Department of Surgical Sciences, C.I.R. Dental School, Section of Pediatric Dentistry, University of Turin, Turin, Italy
[2]Department of Paediatric Odontostomatology and Orthodontics, IRCCS Istituto Giannina Gaslini, Genoa, Italy

Aim: Obstructive Sleep Apnea Syndrome (OSAS) is a disorder characterized by repeated episodes of partial or complete cessation of the airflow through the upper airways. Symptoms include snoring, oral breathing, micro-awakenings, hypoxemia, daytime irritability, attention deficit, hyperactivity, and sleepiness. Consequences include poor academic performance, behavioral problems, growth deficit, nocturnal enuresis, morning headache, increased risk of otitis, and cardiovascular diseases. Diagnosis and treatment require a multidisciplinary approach. The aim of this research is to provide a literature review on the importance of the dentist's role in the diagnosis and treatment of the syndrome.

Methods: using the PubMed database and the keywords "OSAS", "child", "dentist", "snoring", "oral appliance", "maxillary expansion" and "mandibular advancement", 20 articles published between 2008 and 2024 were analyzed.

Results: orthodontic evaluation is fundamental in both the diagnosis and the treatment of OSAS. Although the first therapeutic choice is adenotonsillectomy, in cases of suspected occlusal or craniofacial anomalies, orthodontic evaluation is recommended before the surgery. Orthodontic treatment should be considered as a therapeutic option either before or concurrently with the use of CPAP. The most used orthodontic devices in patients with OSAS are the rapid palatal expander and mandibular advancement devices. The association with myofunctional rehabilitation is also useful.

Conclusions: the pediatric dentist plays an important role in the early diagnosis, as recognition of an oral breathing pattern, typical craniofacial features, and targeted medical history can raise suspicion of OSAS. Furthermore, orthodontic treatment has proven to be effective in improving breathing and alleviating typical symptoms of OSAS.

BLACK STAINS: DEFINITION AND TREATMENT

Licari O, Camardo A

Pediatric Dentistry, University of Pisa, Pisa, Italy

Black Stains (BS) are defined as black spots, formed by bacterial biofilm, present on the smooth surfaces of the teeth. They are found in both primary and permanent dentition, with a prevalence ranging from 2-20% and a homogeneous distribution between the sexes. The microbiota of the oral cavity is the main cause of their appearance with a majority of some chromogenic bacteria including *Actinomycetes, Porphyromonas gingivalis, Prevotella intermedia, Prevotella nigrescens, Prevotella melaninogenica*. BS are formed from insoluble precipitates of ferric salts, including ferric sulphated from reaction between hydrogen sulphate produced by bacterial action, and the iron present in the saliva or sulcular fluid. A diet rich in proteins, milk derivatives, eggs, green leafy vegetables and soy sauce, seem to determine an increase in the concentration of iron ions in the saliva and therefore facilitate, in predisposing microbiome conditions, the appearance of BS. They are clinically classifiable according to morphological and topographic criteria. Several studies have highlighted how there is a reduction in the risk of tooth decay in subjects suffering from BS. The use of ultrasonic scalers and brushing with pastes containing pumice in dental practice are sufficient for their mechanical removal. Primary prevention can be carried out by modifying the subject's diet and administering lactoferrin, which can inhibit microbial action.

TRAUMATIC ANTERIOR TEETH INJURIES: A QUICK OVERVIEW ON MANAGEMENT IN PEDIATRIC DENTISTRY

Pinizzotto M, Cicala CF, Sodano S, Pernice E, Capogna I, Ndokaj A, Perrone A

Postgraduate School of Pediatric Dentistry, Dir.: Prof. M. Bossù, Department of Oral and Maxillo-Facial Sciences, Pediatric Dentistry Unit, Dir.: Prof. A. Polimeni, Sapienza University of Rome, Rome, Italy

Aim: Traumatic Dental Injuries (TDIs) of permanent teeth occur among school age children. These often involve upper central incisors and are the cause of first dental visit. The IADT classification is based on anatomical, therapeutic and prognostic considerations. Prognosis depends on type of TDI, emergency treatment and time elapsed till definitive treatment.

Methods: a comprehensive search was carried out on electronic databases: PubMed, Google Scholar, Scopus, Web of Science, Cochrane. The following terms were searched individually and combined together: trauma, permanent incisors fracture, management, risk factors, prevention. The review included 22 papers published between 1972 and 2022.

Results: the main dental injuries are crown fractures and dislocations. Many risk factors are: male gender, age, obesity, recreational activities, sports, overjet, overbite, lip incompetence and protrusion of upper incisors.

Many authors suggest protocols, methods, trauma first aid, patient examination and the importance of communicating treatment options and prognosis to parents' patients.

The management includes clinical findings, radiographic examination, photos, pulp status evaluation, stabilization, patient instructions, stage of root development and follow ups. Antibiotic use is still a clinicians' choice.

Conclusions: the therapy of dental trauma in children should consider the age and the collaboration. Preserving pulp vitality is important. Necrosis may occur, so the pulp vitality follow ups must be made. Pediatric dentists can play a significant role in diagnosis, health advice, emergency care.

PARENT'S KNOWLEDGE OF ORAL HYGIENE IN PEDIATRIC PATIENTS

Ludovichetti FS, Venturin G, Casagrande C, Stellini E, Gallo M, Favero R, Zuccon A, Mazzoleni S

Dentistry Section, Department of Neurosciences, University of Padua, Padua, Italy

Aim: this study aims to explore parental and prospective parental understanding of oral hygiene practices for newborns and children.

Methods: the research involved the creation of an anonymous questionnaire distributed to patients of dental clinics and parents of children enrolled in nursery and primary schools across the municipalities spanning from Vicenza to Padua. From January 2022 to June 2023, a total of 600 questionnaires were gathered.

Results: statistically significant differences ($p < 0.05$), determined through the Chi-square test and Fisher's exact test, were noted based on parents' educational attainment. These variances encompassed parental awareness concerning the initiation and methods of oral hygiene for infants/children, the impact of dietary habits, especially consumption of sugary beverages before bedtime or overnight, on tooth decay risk, and the potential transmission of dental caries from parent to newborn. Additionally, a notable difference ($p < 0.05$) emerged concerning the integration of teeth brushing into the daily routine for all family members, contingent upon educational background.

Conclusions: the examination of gathered data underscores the evident necessity to enhance parental understanding regarding the significance of oral care, commencing with regular tooth brushing at least twice daily. This initiative aims to cultivate parents as exemplary role models for their children's oral health practices.

PARENTAL KNOWLEDGE, PERCEPTION AND ATTITUDE ON INFANT TEETHING: A SURVEY

Romanelli E[1], Mele S[1], Quaraniello M[1], Lombardi S[1], Salza E[1], Cantile T[1], Riccitiello F[1,2]

[1]Department of Neuroscience, Reproductive and Oral Sciences, University of Naples Federico II, Naples, Italy
[2]Dentistry Unit, AORN Santobono-Pausilipon Pediatric Hospital, Naples, Italy

Aim: teething is the process by which infant's primary teeth appear by emerging through the gums. The eruption of primary teeth is a source of parental concern. The aim of this study was to assess parental knowledge, perception and attitude on teething.

Methods: this study was conducted at the Paediatric Dentistry Unit of the "Federico II" University Hospital, Naples, Italy. A questionnaire was distributed to parents having at least 1 child aged between 0 and 4 years and consisted of four parts: first part included questions on demographic characteristics; second part aimed to investigate parental knowledge on the period of eruption of baby teeth; third part was about signs and symptoms related to teething; fourth part investigated parental perceptions and attitudes on practices to relieve teething-related discomfort. Data were statistically analyzed with Kruskal-Wallis and Mann-Whitney test and Pearson's chi-square test.

Results: 375 questionnaires were collected. Knowledge of the period of eruption of baby teeth and teething-related signs and symptoms was found to be good, since the respondents gave a correct answer to slightly more than half of the questions. Most parents have an adequate perception and have shown a favorable attitude towards implementing practices to alleviate teething-related discomfort.

Conclusions: knowledge on infant teething seems to be adequate. This awareness is a relevant finding, as understanding signs and symptoms associated with teething is essential to properly manage this physiological process and to ensure good oral health from early childhood.

PARENTS' ROLE AND AWARENESS IN DENTAL CARIES PREVENTION: A QUESTIONNAIRE BASED SURVEY

Mele S[1], Romanelli E[1], Lombardi S[1], Quaraniello M[1], Tammaro L[1], Cantile T[1], Riccitiello F[1,2]

[1]Department of Neuroscience, Reproductive and Oral Sciences, University of Naples Federico II, Naples, Italy
[2]Dentistry Unit, AORN Santobono-Pausilipon Pediatric Hospital, Naples, Italy

Aim: parents have a fundamental role in safeguarding their children's oral health. The aim of this study was to investigate parental knowledge, perception and attitude on dental caries prevention.

Methods: this study was conducted at the Paediatric Dentistry Unit of the "Federico II" University Hospital, Naples, Italy. Parents received, by email, a link to complete the questionnaire. The questionnaire consisted of four parts: first part included questions on gender, age, education level, family income, profession, number of sons; second part aimed to investigate parental knowledge on dental caries prevention techniques; third and fourth parts were related to parental perception and attitude on dental caries prevention techniques, respectively. Data were statistically analyzed with Kruskal-Wallis and Mann-Whitney test and Pearson's chi-square test.

Results: 375 parents responded to the questionnaire. Most parents displayed a good knowledge about right oral hygiene behaviors. Most responders recognized that they have a central role in safeguarding their children's oral health, but they were uncertain about the effectiveness of dental sealing and topical fluoride application in protecting against dental caries. The majority of participants acknowledged the need to receive more information on dental caries prevention.

Conclusions: despite a good average level of knowledge, parents still exhibited lack of awareness regarding the effectiveness of preventive measures. Educational programs are strongly encouraged to optimize parental role in caries prevention.

PEDIATRICIANS AND GENERAL DENTISTS' KNOWLEDGE OF PEDIATRIC DENTISTRY

Manzella V, Zanarello S, Bruni G, Bonelli G, Allam A, Cagetti MG

Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy

Aim: this survey aims to assess the level of knowledge of pediatric dentistry among pediatricians and general dentists.

Methods: a survey was designed with a questionnaire investigating basic knowledge of pediatric dentistry, sent to all members of the Order of Doctors and Dentists of Milan.

Results: pediatricians completed 171 questionnaires, while general dentists completed 198. The data reveal a good knowledge of general dentists (99.0%) on the total number of primary teeth, which is higher than that of pediatricians (86.5%); 62 dentists out of 198 (31.3%) would recommend a first dental visit before the age of 3, but only 17 pediatricians out of 171 (9.9%) would recommend it. More than 50% of pediatricians would recommend breastfeeding for children until the age of two (or until the mother considers it necessary), while 131 out of 198 dentists (66.2%) would recommend it until the age of one year. Moreover, 45.4% of general dentists and 33.3% of pediatricians do not know systemic fluoride treatment is less effective than topical treatment. Furthermore, 80.1% (137 out of 171) of pediatricians would recommend tooth brushing by parents until good skill is achieved, but only 71.2% (141 out of 198) of general dentists would recommend it. Finally, only 33 out of 171 pediatricians (16.7%) and 33 out of 198 general dentists (19.3%) would know how to manage dental trauma with tooth avulsion correctly.

Conclusions: both pediatricians and general dentists show inadequate knowledge of pediatric dentistry. Training courses on these topics are needed.

OSAS IN CHILDREN: PREVALENCE OF SYMPTOMS AMONG OUR PATIENTS (UNIVERSITY HOSPITAL OF PISA)

Del Cesta M, Capotosti I, Casciana M, Cerreto D, Ligori S, Zampollo E

Department of Surgical, Medical, Molecular and Critical Area Pathology, Unit of Pediatric Dentistry, University of Pisa, Pisa, Italy

Aim: the aim of the present work was to investigate clinical factors that could indicate the prevalence of OSAS symptoms among children.

Methods: a study was conducted in 55 children aged 3-14 years (30 males and 25 females). Subjects had first-visit appointments at our clinic between February and September 2023. Data were collected via a questionnaire completed by parents (PSQ: "Pediatric Sleep Questionnaire" by Chervin et al). The pupils enrolled in the study were chosen among our patients whose parents agreed to complete the questionnaire correctly. The questionnaire contained 22 items grouped in 10 thematic clusters (snoring; sleep apnea; mouth breathing and enuresis; daytime sleepiness; sleepiness during school hours; difficulty of awakening; headache in the morning; growth issues; overweight; behavioral problems). Questions were close-ended (NO; YES; DON'T KNOW).

Results: the data collected were analyzed to derive percentage values belonging to each thematic clusters. The prevalence of snoring was 23%; the prevalence of difficult breathing was 27%. 15% of parents reported episodes of sleep apnea. 40% of children presented mouth breathing during daytime; 7% of parents reported episodes of nocturnal enuresis. 32% of children presented daytime spleepiness, while 18% presented sleepiness during school hours. 60% of parents reported difficulty in waking their children; only 11% of patients complained of headaches in the morning. No patients had growth issues. 18% of children were overweight and 47% of children had behavioral problems.

Conclusions: PSQ represents a valuable screening tool to assess the prevalence of OSAS in the pediatric population. In conclusion, identification of children at risk is an essential first step before choosing the individualized management for each child. Further research is still needed.

MANAGEMENT OF DENTAL TRAUMA BY THE OPERATORS OF 118 PIEDMONT IN PEDIATRIC PATIENTS

Cogno E[1], Nicola S[1], Marco P[2], Romano F[1], Bello L[1], Defabianis P[1]

[1]C.I.R. Dental School, Department of Surgical Sciences, Section of Pediatric Dentistry, University of Turin, Turin, Italy
[2]Training and quality area, Azienda ZERO Regione Piemonte, Turin, Italy

Aim: the purpose of this survey is to evaluate how health care personnel of the Piedmont Region Pre-Hospital Emergency Medical System (118 Piedmont) clinically manage dental trauma in pediatric patients.

Methods: thanks to the support of Azienda Zero Regione Piemonte, an anonymous questionnaire was submitted to all professionals (anesthesiologists, urgent care providers, and nurses) working on ambulances, helicopters and operations centers of the Pre-Hospital Emergency Health System of the Piedmont Region. The 26-question survey investigated whether and how health care personnel manage pediatric dental trauma on a daily basis in relation to the "National Guidelines for the Prevention and Clinical Management of Dental Trauma in Developmental Age Individuals".

Results: 266 questionnaires were collected from 63 physicians, 202 nurses, and 1 dentist. Among all topics addressed, it was observed that 77.1% were unaware of national guidelines and 53.8% stated that they did not know how to treat dental trauma.

Conclusions: being, in some cases, the first gateway to the NHS, it would be appropriate to create operational protocols to be used on emergency vehicles in order to optimize and standardize the response of all health care personnel in the Pre-Hospital Emergency Health System toward dental trauma of pediatric patients.

A COMPUTERIZED DEVICE FOR LOCAL ANAESTHESIA: A BETTER OPTION THAN TRADITIONAL INJECTION?

Nardi MG, Pascadopoli M, Ciuffreda C, Alcozer R, Vitale MC, Scribante A, Sfondrini MF, Gandini P

Unit of Orthodontics and Pediatric Dentistry, Section of Dentistry, Department of Clinical, Surgical, Diagnostic and Pediatric Sciences, University of Pavia, Pavia, Italy

Aim: local anaesthesia in dentistry is performed to avoid pain during clinical procedures, but injection often arouses fear in paediatric patients. This study aims to compare the discomfort felt by paediatric patients using a traditional syringe with the Computer-Controlled Local Anaesthetic Delivery (CCLAD) system SleeperOne®.

Methods: 30 paediatric patients (mean age 8.57±2.59 years) were involved and randomly assigned to traditional anaesthesia or CCLAD. After injection, patients were questioned about pain, size sensation, bitterness and vomit. A Visual Analogue Scale (VAS) with scores from 0 to 10 was used. Data normality of distributions was assessed with the Kolmogorov-Smirnov test. The student's t test was performed to compare VAS scores of pain, size, bitterness and vomit between the two groups. Linear regressions were calculated considering technique, quadrant, dental arch, tooth, dentition, sex and age as independent variables. Significance was set for $p < 0.05$.

Results: statistically significant lower values of pain were found in CCLAD group suggesting that the technique has a significant influence on pain ($p < 0.05$). No significant differences regarding size, bitterness and vomit were found between the groups ($p > 0.05$). Pain resulted significantly influenced by the type of dentition, with higher values for deciduous one. Perceived pain decreased with increasing age of patients. Bitterness values resulted higher concerning primary first molars.

Conclusions: CCLAD system SleeperOne® seems to be a valid support for the reduction of pain related to anaesthetic injection.

PIT AND FISSURES SEALANTS WITH AND WITHOUT OZONE PRE-TREATMENT: 12-MONTH RESULTS

Romeo VR[1], Chermetz M[2], Luppieri V[1,2], Cadenaro M[1,2]

[1]Department of Medical Sciences, University of Trieste, Trieste, Italy
[2]Institute for Maternal and Child Health - IRCCS Burlo Garofolo, Trieste, Italy

Aim: to assess the retention rate of pit and fissure sealants performed with vs without ozone pre-treatment at 12 months.

Methods: cooperative subjects aged 6-10 years with intact First Permanent Molars (FPMs) on both sides of the dental arch requiring sealant application and isolable with rubber dam were enrolled into this split-mouth randomized controlled clinical trial. Each subject's contralateral molars were randomly assigned to the conventional sealing technique (Group 1) vs ozone pre-treatment (Group 2). Ozone (OzoneDTA, Sweden&Martina) was applied for 60 s on the occlusal surface to be sealed in Group 2; a resin-based sealant (Fissurit F, Voco) was used. Time points: T_1 = 6-month and T_2 = 12-month after treatment. Sample size: 67 FPMs couples (α = 0.05, β = 0.80). Descriptive data analysis and Chi-square test ($p < 0.05$) were performed.

Results: 22 molars (78% lower FPMs) per group were compared. At T_2, the retention rate was 81.9% in G2 *vs* 77.3% in G1 FPMs; p = 0.708. The most frequent causes of failure were sealant detachment (9.1% G1 and G2), marginal fracture (9.1% G1 *vs* 4.5% G2) and secondary caries (4.5% G1 and G2).

Conclusions: although no significant differences were detected, ozone application seemed to be a valid pre-treatment favorably influencing the retention rate of pit and fissure sealants. Ozone has antimicrobial properties, and its application is simple and rapid without side effects. Enlarging the sample size and extending the follow-up is needed to obtain exhaustive findings.

DEVELOPMENTAL ENAMEL DEFECT CORRELATED TO ENDODONTIC ABSCESSES: A RETROSPECTIVE STUDY

Malatesta A, Guglielmi F, Fratto G, Gallotti A, Gallenzi P

A. Gemelli Foundation IRCCS, Catholic University of the Sacred Heart, Rome, Italy

Aim: destructive carious lesions on deciduous teeth often result in dental abscesses. Sometimes, the exudative process can invade the permanent tooth's dental follicle causing various injuries. Aim of this study is to identify the prevalence of enamel defects in premolars whose predecessors developed endodontic abscesses and assess any prevalence changes based on the type of treatment received.

Methods: after obtaining Ethics Committee approval, medical records of patients aged between 6-17 treated at Pediatric Dentistry Unit of a known university-affiliated hospital were examined. The study group consisted of premolars from patients who had developed abscesses on their deciduous molars, divided into two subgroups according to the type of treatment: extraction surgery or conservative therapy. The control group consisted of premolars from patients who spontaneously permuted healthy deciduous molars according to physiological time. Fisher test was used to compare groups.

Results: 33 premolars with history of abscess on their deciduous molars were included. 21 were of female patients and 12 of males, mean age 12.12+2.5 years. 72.7% developed enamel defects, compared to only 6% of the control group developed similar defects ($p < 0.00001$). When comparing different types of treatment received, no significant differences were identified.

Conclusions: chronic endodontic abscess on deciduous molars is a high-risk factor for the development of enamel defects on permanent premolars. The type of treatment received on deciduous molars do not affect the development of enamel defect.

DEVELOPMENTAL ENAMEL DEFECTS, CARIES AND CELIAC DISEASE IN CHILDREN: A CASE-CONTROL STUDY

Milosevic K[1], Grimaldi A[1], Luppieri V[1,2], Zanchi C[2], Cadenaro M[1,2]

[1]Department of Medical Sciences, University of Trieste, Trieste, Italy
[2]Institute for Maternal and Child Health - IRCCS Burlo Garofolo, Trieste, Italy

Aim: to investigate the presence and distribution of Developmental Enamel Defects (DDE) and caries in children with Celiac Disease (CD) and compare results with controls.
Methods: this cross-sectional case-control study was conducted on cooperative subjects aged 4-16 years with CD and controls attending the Pediatric and Dental Units of the Institute for Maternal and Children Health - IRCCS Burlo Garofolo. Subjects with fixed orthodontic devices were excluded. Sample size: 76 celiac subjects, 76 controls ($\alpha = 0.05$, $\beta = 0.90$). Participants were visited by a calibrated dentist to evaluate the presence of DDE i.e., Molar Incisor Hypomineralization (MIH), Molar Hypomineralization (MH), Hypomineralized Second Primary Molars (HSPM), White Spots (WS), caries and restorations. MIH, MH and HSPM were diagnosed according to EAPD diagnostic criteria. Descriptive data analysis was performed.
Results: 160 subjects (80 celiacs, mean age 10.8±4.2 years; and 80 controls, mean age 9.5±3.6 years) were included. The mean age of CD diagnosis was 7.0±4.0 years. 56.3% of celiacs were females. DDE prevalence and caries experience in celiacs *vs* controls were: MIH 0% *vs* 3.8%, MH 2.5% *vs* 2.5%, HSPM 0% *vs* 2.5%, WS 20.0% *vs* 26.2%, caries 16.2% *vs* 22.5% and restorations 3.8% *vs* 15%. Overall, primary teeth were more decayed and restored than permanent teeth.
Conclusions: celiacs had less DDEs and caries experience than controls. An early CD diagnosis and a gluten-free diet might prevent the development of enamel defects and caries. Collaboration between pediatric dentists and gastroenterologists is essential.

PREVALENCE OF DEVELOPMENTAL DEFECTS OF ENAMEL IN AUTISTIC AND NEUROTYPICAL CHILDREN

Grande M, Bellini D, Bisciotti F, Bonelli G, Allam A, Cagetti MG, Salerno C

Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy

Aim: this study aims to investigate the prevalence of Developmental Defects of Enamel (DDEs) in a group of children with Autism Spectrum Disorder (ASD) compared to a group of Neurotypical (NT) peers to investigate whether the presence of ASD might increase the prevalence of DDEs.
Methods: an observational study was carried out on a sample of 240 patients aged between 3 and 14 years, 120 with ASD, referred to the Department of Pediatric dentistry of the University of Milan, and 120 NT enrolled in schools in the Milan area. Subjects with genetic syndromes, craniofacial anomalies, and without adequate cooperation were excluded. Anamnestic data on the child and mother during pregnancy were collected using an ad hoc prepared questionnaire, and a dental examination was performed by calibrated postgraduate students in Pediatric dentistry using the modified-DDE Index. Statistical analysis was performed with STATA 18.0.
Results: eighteen children in the NT group (15.0%) and 73 in the group with ASD (60.8%) had at least one DDE, with a mean of affected teeth, considering both primary and permanent dentitions, of 1.0 (±1.8) in the NT group and 2.1 (±3.0) in the group with ASD. A statistically significant association ($p < 0.05$) between DDEs presence and ASD and between DDEs and respiratory infections in the first 3 years of life was detected.
Conclusions: even if a higher prevalence of DDEs is found in children with ASD, it remains to be investigated whether it is related to the disorder or whether more frequent co-factors in children with ASD may be involved.

ASSESSMENT OF ORAL HEALTH STATUS IN PATIENTS WITH CLEFT LIP-PALATE: CASE-CONTROL STUDY

Destefanis C, Ninivaggi R, Bocca N, Bello L, Defabianis P

Pediatric Dentistry section, Dental School Lingotto, Department of Surgical Sciences, University of Turin, Turin, Italy

Aim: this study compares oral health in Cleft Lip-Palate (CLP) patients and healthy subjects, examining disparities and education's impact on oral hygiene. It also evaluates motivation and professional hygiene's effectiveness in improving pediatric CLP patients' oral health.

Methods: at the Dental School of Turin, 21 CLP patients (mean age: 8.90±3.28 years) and 32 healthy subjects (mean age: 8.06±2.76 years) were studied. Anamnestic data and oral health indicators Gingival Bleeding Index, Plaque Control Record and Decay Missing and Filled Teeth (GBI, PCR, dmft, DMFT) were assessed. Both groups received oral hygiene instructions; the control group had reevaluation. Exclusion criteria: systemic diseases or fixed orthodontic therapy.

Results: no significant differences were found between CLP patients and healthy subjects in gingival health, dental plaque, or dental health indicators. While oral hygiene habits were similar, CLP patients had more occlusal sealant applications and better fluoride toothpaste use. The control group showed significant oral hygiene improvement post-professional hygiene.

Conclusions: comparable oral health was observed between CLP patients and healthy subjects. Education, motivation, and professional intervention enhance oral hygiene in CLP patients, stressing early preventive care's importance.

ASSESSMENT OF ORAL HEALTH STATUS IN PEDIATRIC PATIENTS WITH BECKWITH-WIEDEMANN SYNDROME

Ninivaggi R, Destefanis C, Bocca N, Cogo C, Bello L, Defabianis P

Pediatric Dentistry section, Dental School Lingotto, Department of Surgical Sciences, University of Turin, Turin, Italy

Aim: Beckwith-Wiedemann Syndrome (BWS) is a rare genetic disease characterized by exomphalos, gigantism, and macroglossia. The study aims to assess the oral condition of patients with BWS examining whether oral health status is influenced by the syndrome itself or by poor patient compliance.

Methods: patients aged 2-16 years with BWS and gender-matched healthy control were recruited at the Section of Pediatric Dentistry at the Dental School of the University of Turin. Dental exams were conducted, assessing Full Mouth Plaque Score (FMPS), Full Mouth Bleeding Score (FMBS), Decayed-Missing-Filled-Teeth (DMFT/(dmft)), and Gingival Index (GI).

Results: the study included 27 patients with BWS (11 males, mean age 8.75±4.1 years) and 27 healthy controls (11 males, mean age 8.85±4.0 years). BWS patients exhibited FMPS = 53.4±25.0, FMBS = 13.6±24.2, GI = 1.04±0.759, with 85% having a DMFT score of 0. Healthy controls had FMPS = 43.7±23.3, FMBS = 7.87±16.9, GI = 0.926±0.675, with 93% having a DMFT score of 0. No significant differences were found between the groups ($p > 0.05$).

Conclusions: the expected results are inconsistent with those obtained, as it was expected that BWS, and particularly the associated macroglossia, would contribute to determining a worse oral health status. Therefore, it is concluded that the poor oral health condition of patients with BWS is not due to the presence of the syndrome, but rather to poor patient adherence to correct home oral hygiene procedures.

ACCURACY OF DIFFERENT LARGE LANGUAGE MODELS IN PEDIATRIC DENTISTRY META-ANALYSIS

Lovece C[1], Musella G[1], La Mantia G[2], Seminara G[3,4], Togni L[5], Santarelli A[5], Troiano G[1], Caponio VCA[1]

[1]Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy
[2]Department of Surgical, Oncological and Oral Sciences, University of Palermo, Palermo, Italy
[3]Unit of Oral Medicine and Dentistry for Fragile Patients, Department of Rehabilitation, Fragility, and Continuity of Care, University Hospital A.O.U.P Paolo Giaccone of Palermo, Palermo, Italy
[4]Department of Precision Medicine in Medical, Surgical and Critical Care, University of Palermo, Palermo, Italy
[5]Department of Clinical, Specialistic and Dental Sciences, Marche Polytechnic University, Ancona, Italy

Aim: Systematic Reviews and Meta-Analysis (SRMA) represents the highest level in evidence-based medicine, and they support the development of guidelines and recommendations. In dentistry, AI-based technologies can accelerate the process of literature review. The aim of this study is to evaluate the accuracy of AI-based technologies using 3 different Large Language Models (LLMs) in the data extrapolation process of paediatric dentistry studies.

Methods: using the PICO methodology, ChatPDF, ChatGPT-4, and Elicit were tested using the following sentence: "Is there a greater risk of being affected by developmental dental defects in premature babies? Report in a table the odds ratio and 95% confidence interval, the sample size, and whether the result comes from a univariate or multivariate analysis."

Results: the target outcome was the Odds Ratio, 95% Confidence Interval, and sample size for each group of control and intervention among the included studies from a pedodontics meta-analysis.
All the three platforms employed were able to accurately extract the information required. Agreement was reached, with a K-value of 0.85 among the three platforms. ELICIT performed the less, while no statistical differences emerged between ChatPDF and ChatGPT-4.

Conclusions: the inclusion of LLM in the SRMA of pediatric dentistry outcomes may represent a reliable tool to improve and speed up data extraction. However, improvements are still required as accuracy did not reach 100% and human supervision is still needed.

PREVALENCE OF MOUTH BREATHING IN A SAMPLE OF PRIMARY SCHOOL CHILDREN

Orazi M, Stabilini SA, De Micheli F, Allam A, Tuis J, Manti A, Cagetti MG

Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy

Aim: mouth breathing is a respiratory dysfunction that can compromise the correct development of the stomatognathic system. An early diagnosis and correct orthodontic therapy can prevent skeletal and dental malocclusions.

Methods: the data collection was conducted in a primary school located in the Milan area. The sample examined consisted of 180 children aged between 6 and 11 years, randomly selected from 700 children attending the school. An intraoral and functional examination was performed for each child. An informed consent to the visit was obtained from the parents of the enrolled children. Information regarding any previous or current orthodontic treatment was collected with an interview. For each child, the following data were recorded: type of dentition, presence of dental crossbite, asymmetry of the dental class, the inclination of the occlusal plane, coincidence of the dental midline, patency of the upper airways, lingual posture, and competence of the orbicular muscles.

Results: only 8.33% of the children examined had undergone orthodontic treatment, and 6.11% were under orthodontic therapy. Dental crossbite was found in 5.55% of children, asymmetric Angle's dental class in 27.77%, dental midlines deviation in 63.33 %, inclination of the occlusal plane in 60.55%. Mouth breathing was recorded in 42.77% of the sample examined, 73.88% had a low lingual posture, and 15.00% had lip incompetence.

Conclusions: the pediatric dentist has an essential role as a sentinel in the early interception of functional respiratory problems in young patients.

PEDIATRIC DENTISTRY EPIDEMIOLOGICAL INVESTIGATION IN THE SLUMS OF NAIROBI

Zumbo G, Corvino IC, Amelina G, Tosti I, Rocchetti F, Petracchiola S, Salucci A, Di Giorgio G

Department of Oral and Maxillo-Facial Sciences, Sapienza, University of Rome, Rome, Italy Postgraduate School of Pediatric Dentistry, Dir.: Prof. M. Bossù, Pediatric Dentistry Unit Dir.: Prof. A. Polimeni, Sapienza University of Rome, Rome, Italy

Aim: in Nairobi 60% of citizens live in extreme poverty conditions of the urban slums. Children living in these areas are not guaranteed primary health conditions; oral diseases constitute further concern. This work aims at determining the factors that influence oral health status of children living in the slums of Nairobi.

Methods: an observational study was conducted in May 2022 and August 2023 through a paediatric screening in three urban slums. The PI, CPITN and DMFT were considered as primary outcomes of the dental health condition and several variables such as orthodontic evaluation, fluorosis, habits and MIH were considered as potential predictors. Samplings of water and hair were taken for preliminar analisis and comparison.

Results: two samples of 359 and 360 children aged 2-18 years old were examined. The PI and CPTIN are influenced by age, different types of malocclusions, dental trauma and fluorosis. Dietary habits were found to significantly affect the susceptibility to dental caries. Significant differences among the slum areas emerged. The analysis of the water and hair suggested the presence of ions like fluorides could impact and influence some oral features.

Conclusions: oral health characteristics of children living in Nairobi slums are differently affected by socio-demographic conditions, dental characteristics, dietary habits and oral care practices. A variety of possible actions such as training and education of doctors, nurses and teachers could promote an effective improvement of dental health in low-income countries in pediatric population.

EFFECTIVENESS OF SCHOOL-BASED ORAL HEALTH EDUCATION: A QUESTIONNAIRE-BASED PILOT STUDY

Hodzic N, Cirio S, Manti A, Valentino ND, Cagetti MG

Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy

Aim: childhood is the most effective period for improving oral health habits. The aim of this study was to evaluate the effectiveness of an oral health educational intervention carried out in a fifth year of primary school.

Methods: a questionnaire, containing 11 questions on oral health and eating habits, was administered to children before the educational intervention and 3 months after the intervention.

Results: a total of 42 children were invited to participate in this pilot study. A total of 33 children were included in the analysis as they completed both questionnaires and participated in the educational intervention. At baseline, most of the children consumed sweet or salty carbohydrates during class time; only 6.1% consumed fruit and only 21.0% consumed yoghurt or cheese. Most of the children stated that they only drink water at school (87.9%). The educational intervention did not produce any changes in the children's eating habits. With regard to oral hygiene habits, at baseline 93.9% of the children brushed their teeth 2 or more times a day, whereas at follow-up this percentage increased to 97.0% ($p > 0.05$). Furthermore, a significant difference was found in the use of the electric toothbrush, which increased from 51.6% before the educational intervention to 81.8% three months later ($p = 0.01$).

Conclusions: the results of this study encourage the promotion of school-based educational interventions on children's oral health, but also highlight how complex it is to change eating habits and that a single intervention is not sufficient to achieve this goal.

DENTAL AND CRANIOFACIAL CHARACTERISTICS IN A PATIENT WITH TREACHER COLLINS SYNDROME

Motta A[1], Del Dot L[1], Ballini A[2], Rignani M[2], Dibello V[3], Altini V[4], Cantore S[4]

[1]Operative Unit of Oral Surgery for Special Needs and Dentistry, Borgo Valsugana, Trento, Italy
[2]Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy
[3]Department of Interdisciplinary Medicine, University of Bari Aldo Moro, Bari, Italy
[4]Independent Researcher, Regional Dental Community Service "Sorriso & Benessere-Ricerca e Clinica", Bari, Italy

Aim: Obstructive Sleep Apnea (OSA) is the most prevalent type of sleep-disordered breathing disruption. Sleep medicine is a rapidly growing specialty worldwide. Nowadays, orthodontists specializing in sleep disorders often recommend a personalized therapy for these patients, i.e. the use of a Mandibular Advancement Appliance (MAA). This pilot study explores the impact of an oral appliance like MAA in treating apnea by integrating functional medical images and numerical models.

Methods: a total of 4 patients (2 males and 2 females) presenting mild-to-moderate sleep Apnea–Hypopnea Index (AHI) and regular BMI, were recruited to participate in this pilot comparative study. A custom-made MAA was designed to compare anatomical changes (upper airways) with and without the MAA.

Results: MAAs are tailored to the patient's dentition in a laboratory-controlled advancement. Comparing the images, with a symmetrical anatomical analysis of the upper airways, reveals the positive effects of MAA in the air flow behavior, increasing the total airway volume, led in this way to airflow changes in the upper airway. The limitations of this study included the restricted samples and the absence of a control group.

Conclusions: advanced modeling of airflow and positioning of MAA could be applied to enhance the diagnosis and treatment of obstructive sleep apnea. A careful candidate selection must be carried out by both the sleep specialist and qualified MAA provider in order to achieve a higher therapeutic success rate. Also, long-term evaluation of MAA's must be undertaken to assess the efficacy.

BIO-ACTIVE RESTORATIVE COMPOSIT *VERSUS* GLASS-IONOMER FOR DECIDUOUS TEETH FILLINGS

Fabrizio F, Bardellini E, Amadori F, Majorana A

University of Brescia, Brescia, Italy

Aim: the aim of this study was to evaluate the clinical performance of bio-active restorative composite *versus* glass-ionomer for fillings on deciduous teeth over a one-year period.

Methods: thirty-two patients (12 male, 20 female) under 14 years old were recruited for this study. A total of 64 cavities in primary molars were restored either with bio-active restorative composite or glass-ionomer (32 each). The restorations were assessed at 3, 6, and 12 months using modified US Public Health Service (USPHS) criteria.

Results: after one year, no significant differences were found between the two restorative materials in terms of vitality loss. However, the bio-active restorative composite showed clinically superior results (acceptable results, alpha and bravo) compared to glass-ionomer after one year. There were also no significant differences in Wong-Baker scores between the two materials.

Conclusions: bio-active restorative composite demonstrated excellent clinical performance, particularly in restoration and marginal integrity. Therefore, bio-active restorative materials represent a valuable and practical alternative to glass-ionomers for restorative treatments in deciduous teeth.

HOW IMPORTANT IS VIDEO INFORMATION TO ORAL HEALTH? A STUDY IN PROGRESS

Manti A, Di Vito F, Colaianni L, Allam A, Salerno C, Cirio S, Cagetti MG

Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy

Aim: most oral diseases, such as caries, are preventable. Therefore, promoting knowledge, positive attitudes, and motivation is fundamental to educating young patients. The study aims to test the impact of an informative video on Oral Health-Related Quality of Life (OHRQoL).

Methods: two videos were prepared, one in which a child spoke positively about both his oral health and the dental visit he had undergone, and a second video in which both aspects were presented negatively. The videos were shown to a group of schoolchildren (6-10 years) divided into three groups: Positive video (G1), 21 subjects (mean age 7.62±2.82); negative video (G2), 24 subjects (7.67±1.99); no video (G3) 19 subjects (8.0±1.45). A quality-of-life questionnaire (COHIP-SF19) was administered at baseline (T_0) and again one month later (T_1) after the videos had been shown.

Results: at T_0, no significant differences between the groups regarding the following questionnaire's items were detected: children regularly visited by a dentist were G1 = 80.95%, G2 = 79.17%, G3 = 68.42%; children who brush teeth two or more times a day were G1 = 76.19%, G2 = 87.50%, G3 = 84.21%; children have sometimes experienced pain in teeth/mouth were G1 = 28.57%, G2 = 29.17.00%, G3 = 15.79%; children who have been absent from school due to pain or have difficulty eating G1 = 9.52%, G2 = 8.33%, G3 = 5.26%.

Conclusions: we expect that there will be a difference in the OHRQoL between children who watched the positive video and those who watched the negative one. The results will be presented on the poster.

DEPTH OF CURE, ROUGHNESS, HARDNESS AND SURFACE CHARACTERISTICS OF PAEDIATRIC MATERIALS

Ludovichetti FS, Gariso A, Smania S, Stellini E, Gallo M, Favero R, Zuccon A, Mazzoleni S

Department of Neurosciences, Dentistry Section, University of Padua, Padua, Italy

Aim: to compare depth of cure, hardness, roughness and surface characteristics between four restorative paediatric materials: FUJI IX GC FAST, RivaSilver, SDR flow+, Vertise Flow.

Methods: depth of cure was calculated using the ISO 4049 standard. An acid attack simulation was made by immersing 6 samples of each material in an acid solution, then a toothpaste was applied, after that a second acidification cycle was provided. Samples of SDR and Vertise were brushed for 20 and 60 minutes. After each cycle, SEM images were collected, hardness was calculated through a Vickers indenter under 10N load and a 30s dwell time; surface roughness according to ISO 4288 and statistical differences were investigated.

Results: depth of cure of Vertise is statistically inferior to SDR. Hardness of brushed samples showed differences between Fuji, SDR and Vertise. Hardness of samples without treatment and with 60' of brushing was different for each material. Regarding roughness of samples subjected to acid treatments, RivaSilver and Vertise show a difference between untreated samples subjected to one and two acid cycles and for Vertise also between samples treated with acid and toothpaste. In all cases Rivasilver presented higher roughness values. SDR and Vertise showed roughness differences between samples brushed for 20' and 60'. Regarding samples brushed 20', Fuji shows the higher value, for those brushed 60' all materials showed significant difference, except for SDR and Vertise.

Conclusions: multiple acid attacks and prolonged brushing modifies surface characteristics of the investigated material.

RAMAN SPECTROSCOPY CHARACTERIZATION OF MIH AFFECTED AND SOUND ENAMEL

Squillace E[1], Ottaviani G[2], Luppieri V[3], Cadenaro M[3,4], Sannino I[5], Defabianis P[1], Scotti N[1], Comba A[1]

[1]Department of Surgical Science, C.I.R. Dental School, Section of Pediatric Dentistry, University of Turin, Turin, Italy
[2]Department of Medicine, Surgery and Health Science, University of Trieste, Trieste, Italy
[3]Institute of Maternal and Child Health-IRCCS Burlo Garofalo, Trieste, Italy
[4]Department of Medicine, Surgery and Health Sciences, University of Trieste, Trieste, Italy
[5]Department of Applied Science and Technology, Polytechnic of Turin, Turin, Italy

Aim: Molar incisor hypomineralization (MIH) is a phenomenon defined as a quality defect of enamel of systemic origin of one to four permanent first molars (PFMs), frequently associated with morphological changes of incisors. This study investigates MIHaffected enamel biochemical properties using Raman spectroscopy and scanning electron microscopy (SEM), in order to understand the alterations occurring in MIH-affected enamel.

Methods: 10 patients with MIH-affected molars requiring restorative treatment were selected. 2x2mm enamel fragments were collected during restorative procedures, removing affected tissue with undamaged margins, and stored at 4°C. Samples were characterized using Raman spectroscopy and SEM, both on the MIH lesions and sound margins to evaluate the enamel biochemical properties. Raman measurements utilized a BWTEK portable spectrometer with a monochromatic laser (λ: 1064 nm) and a BTC284N spectrometer coupled with a CCD sensor and a BAC151 compact microscope. SEM images were obtained with a Phenom™ XL G2 Desktop SEM under low vacuum conditions. Data were statistically analyzed with Chi-Square test and Bonferroni adjustment. Statistical significance was set for $p < 0.05$.

Results: statistical analysis of Raman spectroscopy measurements revealed significant differences ($p<0.05$) in hydroxyapatite and protein levels in MIH lesions compared to normal enamel.

Conclusions: raman spectroscopy coupled with SEM emerged as a valuable tool for characterizing and understanding the changes in MIH-affected enamel under various conditions.

RESIN COMPOSITES AND HYBRID GLASS-IONOMERS IN CLASS I DENTAL RESTORATIONS: A FEM STUDY

Amendola F, Oliviero P, Mancone A, Serpico V, Ausiello P

Department of Neurosciences, Reproductive and Odontostomatological Sciences, University of Naples Federico II, Naples, Italy

Aim: this study evaluates by means of FEA the behavior of Filtek One Bulk Fill Restorative (E=, 11 GRa) and Eauja Forte ht (E- 6.27 GPa) in a bi-layer *versus* a single-layer adhesive technique in dental restorations.

Methods: three restored Class I 4 mm deep cavity models were exported in the CAD software and submitted to FEM analysis. Filtek One Bulk Fill restorative + Equia Forte ht (Model A), Filtek One Bulk Fill (Model B) and Equia forte ht (Model C). Shrinkage stress and load of 600N on the occlusal region were applied. Static linear analyses were carried out. The maximum normal stress criterion was adopted as a measure of potential damage at the restoration interfaces.

Results: all models exhibited higher stresses principally located along the tooth tissues-restoration interfaces. Model A and Model B showed the highest stress trend along dentin-restoration interfaces; a lower stress level in Model A up to 1.9 MPa in the dentin and in the most cervical region of the restoration and up to 17.1 MPa in the most coronal one were recorded; stresses of 5.7 MPa in the dentine and up to 16.7 MPa in both the coronal and cervical parts of the restoration were detected for Model B. Model C where Equia Forte nt was simulated showed a reduced stress level in the dentin and in the coronal area of the restoration, less than 1.2 MPa.

Conclusions: this analysis supported the positive effect of a bi-layer restorative technique of GIC + BF in 4 mm deep class I restorations *versus* a single-layer based on BF technique. The use of a hybrid glass ionomer is convenient in class I restoration.

ECO-FRIENDLY PEDIATRIC DENTISTRY: TOOTH BUDS AS A RELIABLE SUSTAINABLE SOURCE OF STEM CELLS

Bizzoca ME[1], Zhurakivska K[1], Coppini M[2], Buttacavoli F[2], Mascitti M[3], Togni L[3], Cantore S[4], Ballini A[1]

[1]Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy
[2]Oral Medicine and Dentistry for Fragile Patients Unit, Department of Rehabilitation, Fragility, and Continuity of Care, University Hospital Palermo, Palermo, Italy
[3]Department of Clinical Specialistic and Dental Sciences, Marche Polytechnic University, Ancona, Italy
[4]Indipendent Researcher

Aim: the implementation of any treatment based on the circular economy approach and "waste" reuse concept represents a competitive and innovative choice for biotech companies for achieving a reduction in cost management and environmental impact. Dental-derived stem cells are today considered as an intriguing milestone of the regenerative medicine, and Tooth Buds (TB) from pediatric patients, can represent a sustainable and easily accessible source of stem cells. Besides, nowadays, there is an urgent need to identify natural bioactive compounds form sustainable sources, that can improve oral health. Previous reports showed that Curcumin Methanolic extract (CMT) enhanced the osteogenic differentiation of TB-stem cells by regulating the expression of osteogenic genes.
Methods: were investigated the effects of CMT on osteogenetic differentiated human TB, with (Test Group), and without (Control Group) CMT addition, through spheroid culture, and using the optimal concentration of CMT on scaffold, as validation model.
Results: for the results obtained, it was possible to speculate that the intrinsic bioactive properties of natural compounds/waste compounds could be inhibitory on the production of pro-inflammatory molecules, in the maintenance phase of a bio-scaffold loaded with D-dSCs interacting, in a positive way, with the mesenchymal environment.
Conclusions: biowaste, such as tooth buds, could be considered as a high value resource which might be converted into sustainable biotech materials and new active factors fully complying with the circular economy concept.

FIFTEEN YEARS OF DENTAL TREATMENTS IN PATIENTS WITH SPECIAL NEEDS

Fratto G, Guglielmi F, Nuzzo B, Malatesta A, Montali L, Gallenzi P

A. Gemelli Foundation IRCCS, Catholic University of the Sacred Heart, Rome, Italy

Aim: dental management of patients with Special Needs (SN) is challenging. This study aims to describe procedures and re-intervention rate of treatments performed in Oral Day-Surgery in patients with SN.
Methods: records of dental procedures performed in general anesthesia between 2005 and 2020 at a large university-affiliated hospital were obtained. Data were collected of patients fragile by age or due to genetic anomalies and/or syndromic conditions and/or psychomotor delay or dental phobia. Records of patients undergoing deep sedation or polyfunctional monitoring were excluded.
Results: of 1547 procedures analyzed, the average age of patients was 23±15.7 years; 57.3% were males. 1236 patients had intellectual and/or physical disabilities, 171 were fragile by age, and 140 had a diagnose of dental phobia. 21% of patients underwent two surgeries; 4% underwent three surgeries, 2,8% underwent four surgeries and 1,3% [3] five; with 68% of patients undergoing more than one surgery in 15 years of records.
Clinical procedures performed were: 642 Dental Cleaning (DC) together with extraction of deciduous and/or permanent teeth, 552 DC together with restorative treatments, 160 DC together with restorative treatments and dental extractions, 101 DC, 92 DC together with complex surgical procedures and/or extraction of supernumerary teeth.
Conclusions: the study describes procedures and reintervention rate in patients with SN. DC together with teeth extraction is the most common procedure performed. One thousand fifty-two patients (68%) underwent more than one surgery in the timeframe analyzed.

HUMAN PAPILLOMAVIRUS ORAL INFECTION AND PERSISTENCE IN PEDIATRIC POPULATION (HOPE PROJECT)

Scafidi M[1], Giuliana G[1], Capra G[2], Buttà M[2], Sucato A[2], Minacapilli G[1], D'Arpa V[1], Panzarella V[1,3]

[1]Department of Precision Medicine in Medical, Surgical and Critical Care (Me.Pre.C.C.), University of Palermo, Palermo, Italy
[2]Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties (ProMISE), University of Palermo, Palermo, Italy
[3]Center for Sustainability and Ecological Transition, University of Palermo, Palermo, Italy

Aim: the pediatric story of HPV represents a scientific challenge. Oro-pharyngeal districts in children act as a reservoir of silent high-risk HPV types and these conditions could cause initial step of cancer development. HOPE project mainly aims to be a large prospective cohort study of pediatric population to better understand the rate and the determinants of postnatal HPV infection/persistence.

Methods: in this first study stage, children (0-14 years), consecutively enrolled in HOPE after parental informed consent, were subjected to: oral examination, non-invasive salivary sampling by LolliSpongeTM (Copan Italia) and HPV-DNA detection by the INNO-LiPA® HPV Genotyping. All parents were interviewed to investigate demographic data, educational status, socioeconomic conditions, and knowledge about HPV infection. Descriptive analysis was used to elaborate data.

Results: preliminary results are available from 33 minors (mean age 10 years; M/F ratio: 16/17), all resulted HPV-DNA negative. Questionnaire administration mainly involved mothers (91%), housewives, aged between 34-41 (33%) and with a low-medium education level (67%). 84% of sample has a low medium socio-economic status and 79% are Catholic. About HPV knowledge, the majority do not know the transmission methods and related risk habits (up to 94%), neither HPV connection with tumors (58%). None are vaccinated but will vaccine their child, mainly after obtaining more information from their physicians (33%).

Conclusions: in the pediatric population, important multi-disciplinary and sustainable awareness campaigns are needed to reduce the known socio-demographic barriers related to the oncological impact of HPV dissemination and persistence.