University in Zagreb School od Dental Medicine

PhD program at School of Dental Medicine

Academic year 2021./2022.

Course title : Experimental evaluation of the efficacy of protective and restorative treatments of molar-incisors hypomineralization (MIH)

Department : Department of Pediatric and Preventive Dentistry

Address : Gundulićeva 5, 10 000 Zagreb

Total ECTS points : 3

Course leader : Prof.dr.sc. Kristina Goršeta, dr.med.dent

Course associates : /

Teaching plan

	No. classes
Lecture	5
Seminar	5
Practical	5
Total	15

1 class = 45 minutes

Course description:

Recent studies show the incidence of MIH in every sixth child. The theoretical part of this course will present the results of epidemiological molar incisor hypomineralization (MIH) research in children globally and nationally. Meta-analysis will process the MIH's etiology and evaluate all etiological factors. It has been shown that children with MIH have a total of more dental treatments than children without MIH. Special attention will be given to new findings of scientific (laboratory and clinical) research. It is necessary for understanding MIH and choosing an adequate clinical approach to treating affected teeth. The available MIH dental treatments are very diverse, from protective to restorative procedures.

As part of the exercise, various materials for the treatment of MIH teeth will be evaluated. The specificity of adhesion of the material to hypomineralized enamel will be discussed. Bond strength to the enamel of reduced mineralization will be tested with a universal testing machine. The effectiveness of protective fluoride, calcium and phosphate paste will be also evaluated. Particular attention will be paid to planning future research and presenting your own research ideas.

Learning outcomes

1. Conduct a differential diagnosis and distinguish disorders of teeth mineralization.
2. Critically evaluate the choice of therapy with regard to the involvement of the crown and assess the long-term outcome of the therapy.
3. Examine the meta-analysis, valorize existing research and design new research in the MIH area.

4. Plan and conduct laboratory testing of materials

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Course content

Lecture

	Lecture topics	**Number of classes/hours**
1.	Etiology of molar incisor hypomineralization (MIH)	1
2.	- Clinical features and classification of MIH	1
3.	- Diagnosis and differential diagnosis of MIH	1
4.	- Criterion selection of protective or restorative procedures for the treatment of MIH	1
5.	- Introduction to laboratory equipment for measurement of mechanical properties and enamel microhardness	1
6.	-	-
7.	-	-
8.	-	-
9.	-	-
10.	-	-

1 class = 45 minutes

Seminar

	Seminar topics	**Number of classes/hours**
1.	Analysis of environmental factors in the prenatal period as possible causes of MIH	1
2.	Evaluation and discussion on the effectiveness of available protective procedures for MIH according to the current scientific findings.	1

3.	Multidisciplinary approach to treatment (preventive procedures, restorative procedures, tooth extraction with MIH and orthodontic therapy)	1
4.	Scientific analysis of efficiency of restorative materials and different procedures in the treatment of MIH through multi-year monitoring - clinical studies	1
5.	Guidelines for further research on molar incisor hypomineralization (MIH)	1
6.	-	-
7.	-	-
8.	-	-
9.	-	-
10.	-	-

1 class = 45 minutes

Practicals topics

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	practicals topics	**Number of classes/hours**
1.	Meta analysis of conducted epidemiological research about MIH	1
2.	Preparation of enamel samples for laboratory testing	1
3.	Laboratory testing (materials and hard dental tissue)	3
4.		-
5.		-
6.	-	-
7.	-	-
8.	-	-
9.	-	-
10.	-	-

1 class = 45 minutes

Literature:

Zhao D, Dong B, Yu D, Ren Q, Sun Y. The prevalence of molar incisor hypomineralization: evidence from 70 studies. Int J Paediatr Dent. 2018 Mar;28(2):170-179.

Schwendicke F, Elhennawy K, Reda S, Bekes K, Manton DJ, Krois J. Global burden of molar incisor hypomineralization. J Dent. 2018 Jan;68: 10-18.

Lygidakis NA, Wong F, Jälevik B, Vierrou A-M, Alaluusua S, Espelid I. Best Clinical Practice Guidance for clinicians dealing with children presenting with Molar-Incisor-Hypomineralisation (MIH) An EAPD Policy Document. Eur Arch Paediatr Dent. 2010 Apr;11(2):75-81.

Kotsanos N, Kaklamanos EG, Arapostathis K. Treatment management of first permanent molars in children with Molar-Incisor Hypomineralisation. Eur J Paediatr Dent 2005; 6(4): 179-84.

Lygidakis NA. Treatment modalities in children with teeth affected by molar incisor hypomineralisation (MIH): A systematic review. Eur Arch Paediatr Dent. 2010; 11: 65-74

Norman O. Harris , Garcia-Godoy F, Nielsen Nathe C . Primary Preventive Dentistry (Harris) Pearson; 8 edition (June 17, 2013) ISBN-10: 0132845709

Goršeta K, Ambarkova V, et al. Influence of Dentifrices pH on Enamel Microhardness In Vitro. CollAntropol. 2015 Jun;39(2):427-31.

CV (*curriculum vitae*) and bibliography of course leader :

https://www.bib.irb.hr/pretraga?operators=and|Gor%C5%A1eta,%20Kristina%20%2824436%29|text|profile

Dr. Kristina Goršeta graduated in 2001 from the School of Dental Medicine at the University of Zagreb. She completed a pediatric dental residency at the Clinical Hospital of Zagreb. After receiving her certificate as well as master's and doctoral degrees in pediatric dentistry she works as an associate

professor and a pediatric dentist in the Department of Pediatric and Preventive Dentistry at the School of Dental Medicine, University of Zagreb.

During her career she has been actively participating at the international conferences and meetings. She has been involved in research and projects. Dr. Goršeta has authored or co-authored over 50 scientific publications, primarily on glass ionomer cements, fluorides, early childhood caries and prevention.

She is a member of national and international associations. She is Nomination Committee Member of the European Academy of Pediatric Dentistry, member of International Association of Pediatric Dentistry, International Association of Dental Research and ORCA. She currently serves Croatian

society of pediatric dentistry as president. Dr. Goršeta's research focuses on bioactive materials and research involving oral health care in children.