

تأثیر دو نوع قطره آهن بر میزان جذب اتمیک، تغییر رنگ و ساختار مینای دندان‌های شیری

دکتر مجید مهران^{†*} - دکتر مهشید محمدی بصیر^{**} - دکتر صدیقه جعفری^{***}^{*}استادیار گروه آموزشی دندانپزشکی اطفال دانشکده دندانپزشکی دانشگاه شاهد^{**}استادیار گروه آموزشی ترمیمی و زیبایی دانشکده دندانپزشکی دانشگاه شاهد^{***}دندانپزشک**Title:** Effect of two kinds of iron drops on the discoloration, atomic absorption and structural changes of primary teeth enamel**Authors:** Mehran M. Assistant Professor^{*}, Mohammadi Bassir M. Assistant Professor^{**}, Jafari S. Dentist**Address:** ^{*}Department of Pedodontics, School of Dentistry, Shahed University^{**}Department of Operative Dentistry, School of Dentistry, Shahed University**Background and Aim:** Black staining after taking iron drops on the primary teeth is always concern of parents. There is not an exact explanation for the mechanism of iron black staining. The purpose of this study was to compare tooth discolorations, atomic absorption and structural changes of primary teeth enamel caused by two kinds of iron drops [Kharazmi(Iran) and Fer-in-sol(USA)].**Materials and Methods:** In this ex-vivo study, 93 sound primary teeth in normal color range were divided into five groups. Two groups of samples were immersed into the Artificial Caries Challenge(ACC) for two weeks before getting exposed to iron drops: Group 1 Control(NS): sound enamel teeth which were kept in Normal Saline environment(NS)(13teeth). Group 2 (NS-KH): NS, kharazmi iron drop (20 teeth). Group 3 (ACC-KH): ACC, Kharazmi iron drop (20teeth). Group 4 (NS-F-in-S): NS, Fer-in-Sol iron drop (20teeth). Group 5 (ACC-F-in-S): ACC, Fer-in-Sol iron drop. Visual tooth discolorations were determined by a specialist in operative dentistry who was not aware of experimental groups. The iron concentration was measured by ICP system (Vista-pro, Australia) and the structural changes were studied by SEM (Philips, Netherland). The data of discoloration were studied with Kruskal-Wallis test and multiple comparison using Bonferroni type test, and with the data of atomic absorption were studied with oneway ANOVA test and Tukey HSD test.**Results:** The discoloration in the teeth immersed into the ACC (ACC-KH, ACC-F-in-S) was more severe than the sound enamel surface (NS-KH, NS-F-IN-S) ($p < 0.001$) and Kharazmi iron drop caused more discoloration in the teeth immersed into the ACC ($p = 0.018$). The teeth immersed into the ACC, absorbed more iron than the sound enamel surface ($p < 0.001$) and also the teeth immersed into the ACC absorbed more Kharazmi iron drop ($p < 0.001$). In the Scanning Electron Microscopy study, at low magnification in the sound teeth the perikymata was arranged regular. At low magnification in the teeth immersed into the ACC, many fractures were observed. The fractures in group 3(ACC-KH) were more and deeper.**Conclusion:** Being immersed into the ACC, caused more iron absorption, severe discoloration and structural changes in the enamel of primary teeth. Such changes were more distinct in the teeth exposed to Kharazmi iron drop than the teeth exposed to Fer-in-Sol iron drop.

Key Words: Tooth discoloration; Ferrous sulfate; Iron; Enamel

چکیده

زمینه و هدف: تغییر رنگ سیاه دندان‌های کودکان به دنبال مصرف ترکیبات آهن همواره مورد نگرانی والدین بوده است. هنوز مکانیسم دقیقی برای نقش آهن در ایجاد تغییر رنگ ارائه نشده است. در این مطالعه به بررسی اثر دو نوع قطره آهن (خوارزمی-ایران و Fer-in-Sol-USA) بر تغییرات رنگ، میزان جذب اتمیک و تغییرات ساختار مینای دندان‌های شیری، پرداخته شد.**روش بررسی:** در این مطالعه آزمایشگاهی تعداد ۹۳ عدد دندان شیری قدامی سالم و در محدوده رنگ طبیعی، به ۵ گروه تقسیم شدند. در دو گروه دندان‌ها قبل از تأثیر آهن، در محیط پوسیدگی‌زای مصنوعی (Artificial Caries Challenge)، قرار گرفتند: گروه ۱ (NS): محیط نرمال سالیین[†] مؤلف مسؤول: نشانی: تهران - خیابان ایتالیا - بین وصال و قدس - دانشکده دندانپزشکی دانشگاه شاهد - گروه آموزشی دندانپزشکی اطفال

تلفن: ۸۸۹۵۹۲۱۰ نشانی الکترونیک: Mehran44m@Yahoo.com