Early BPA exposure may adversely affect formation of tooth enamel

PARIS, France: New research from France has suggested that bisphenol A (BPA), a chemical widely used in plastics and dental resins, is a potential causative agent of molar incisor hypomineralisation (MIH). Damage similar to this mineralisation disorder, which occurs selectively in permanent incisors and first molars, was observed in rodent teeth after treatment with BPA.

Researchers from the National Institute of Health and Medical Research treated the incisors of rats daily with low doses of BPA (5 μg/kg/day) from birth to 30 or 100 days. At day 30 already, the erupting tooth enamel exhibited signs of hypomineralisation similar to human MIH. The researchers suggested that BPA disrupts normal protein removal from the enamel matrix and leads to mineral depletion, making the teeth more fragile.

However, no such effect was observed in 100-day-old rats. As their erupting incisor enamel was normal, the scientists suggested that enamel formation is only sensitive to MIH-causing agents during a specific time window in early development.

As it is strongly suspected that BPA has the same effects on humans as on laboratory animals, it could be a causal agent of MIH, concluded Dr Sylvie Babajko, a research director at the institute.

The condition is found in roughly 18 percent of children aged between 6 and 8. The permanent maxillary central incisors and first molars are affected most often, and the permanent mandibular incisors less frequently. Usually, the teeth show a yellowish-white to brown discoloration, which may affect only certain areas of the tooth or the whole tooth. The teeth of MIH children are commonly hypersensitive to pain and more susceptible to cavities.

Endocrine-disrupting chemicals, including BPA, are ubiquitous environmental pollutants and increasingly associated with health concerns. Prior studies have associated it with adverse effects on reproduction, neurological development, and metabolism. The manufacture and marketing of babies’ bottles containing BPA were banned in Europe in 2011. The prohibition will be extended to all food containers in France from July 2015. The study, titled “Enamel defects reflect perinatal exposure to bisphenol A,” was published online on 10 June in the American Journal of Pharmacology ahead of print.

Study finds no differences in children treated with composites or amalgam

WATERTOWN, Mass., USA: In contrast to prior studies, which had demonstrated that resin-based composite dental restoration materials may impact children’s physical growth by releasing bisphenol A, an endocrine-disrupting chemical, an analysis of the same data has found no significant differences in physical development of children treated with either composites or amalgam.

Researchers at the New England Dental Research Institutes tested whether dental restoration materials affect children’s growth using a secondary analysis of a study that was conducted as a part of the New England Children’s Amalgam Trial, one of only two randomized clinical safety trials in the U.S. to address the potential impact of mercury exposure from amalgam restorations on neurological and renal function in children.

The researchers investigated data from 238 boys and 256 girls aged 6 to 10 with two or more decayed posterior teeth that were randomly treated with amalgam or composite.

“Overall, there were no significant differences in physical development over five years in children treated with composites or amalgam,” the researchers said. For instance, the results showed no significant differences between treatment assignment and changes in physical development in boys with regard to body mass index, body fat percentage and height velocity.

However, they found that girls treated with composites had a lower risk of menarche during follow-up. Additional studies examining these restoration materials in relation to age at menarche are warranted, the researchers said.

The study was published online on Sept. 12 in the Journal of Dental Research ahead of print.
The filter principle: Is every patient a finals patient?

Simon Hocken
UK

"Your work is going to fill a large part of your life, and the only way to truly be satisfied is to do what you believe is great work. And the only way to do great work is to love what you do. If you haven't found it yet, keep looking. Don't settle." 

As with all matters of the heart, you'll know when you find it. And, like any great relationship, it just gets better and better as the years roll on. So keep looking until you find it. Don’t settle.

Steve Jobs, CEO of Apple Inc. in 2005

You remember finals, don’t you? Of course you do. Your examiners care- fully selected a patient(s) for you to examine and diagnose and for whom to present a treatment plan. The finals patients were unlucky enough to have more than one dental problem and you were marked on finding all of them and your ability to determine a set of solutions for the patient.

Afterwards, most of us headed off into practice, where a series of finals patients are paraded in front of us on a daily basis. Now these patients will- lingly pay us to make our profession- al judgements, offer our best solu- tions and suggest a fee for doing the dentistry.

However, that’s not always what happens, is it?

There’s something that happens in general dental practice (be it pu- blic like the National Health Servi- ce [NHS] here in the UK, mixed or private practice) that is rarely spoken about in dental magazines, online fo- rums or even at the bar at dental con- ferences. And it’s this: many dentists consult with, examine, diagnose, and treatment plan their patients, not in the way that they did for their finals patient, but by applying some sort of screening.

You can imagine that women’s teeth are smaller than men’s teeth. The German Society for Sex-Specific Oral and Dental Research (DGSZ) states, "Recognisable typical male teeth or female teeth do not exist." This was predicted by having participants evaluate 50 images of the anterior oral region of men and women aged between 20 and 75. The lip area was not shown.

The participants included dentists, dental technicians, dental students and dental professionals, as well as 50 people who had no professional dental background.

The results overall demonstrated that sex could be detected in only about 30 percent of the images. Although there are anthropological stu- dies that claim to prove measurable morphometric differences, the study proved that those are not even visible to experts’ eyes.

While some tooth positions were correctly assigned by 70 percent of the participants, others were wrongly assigned by the same number of participants. The assumption that women tend to have rounded teeth and men rather angular ones could not be confirmed by the study. Furthermore, contrary to what was expected by many of the participants, shape, size, and colour of the canines were not meaningful indicators of sex.

"In everyday practice, it is relevant whether the restoration fits the pa- tient’s face but not whether the patient is male or female," Radlanski said. "Recognisable typical male teeth or female teeth do not exist."

The increase in the use of dental implants is also partly due to the developments in the design of the implants themselves and of the com- ponents available to complete the re- storation.

All of these advances, however, would be of little use without well- defined decision-making criteria when considering treatment in the context of either damaged or missing teeth. Accurate diagnosis is essen- tial, and the clinicians involved must always have the aesthetic aspects of the treatment foremost in mind when dealing with sites located within the appearance zone.

"We agree to compromise our professional skill set and integrity in order to be liked."

Duty of care

I know that some of you will be wining already at my comparison between a clinician and a mechanic but there’s more mileage in this ana- logy still to come. After paying for just the service, you drive off from the garage with the faults left un- reported. A child runs out in front of your car and you fail to stop in time because of the worn tyres/brake pads/ disc pads. In the inspection that follows, these things come to light and spark a witch-hunt.

A good garage owner dare not risk not great from where I’m sitting and let’s not tell the national newspapers.

When I left the NHS in 1992, I deci- ded to get rid of all the filters I had acquired, and simply show and tell my patients what I could do for them as if they were one of my family and money and time weren’t an issue. I’ve used exactly the same approach in my coaching practice. I was lucky enough to be mentored by some great coaches on the idea that you often do your best coaching just before you get fired (for telling it like it is). And that’s what I do for our clients.

Teeth equally perceived by dentists

DTI

BERLIN, Germany: Several mor- phometric studies have proven sexual dimorphisms in human teeth, for example that women’s teeth are smaller than men’s teeth. The German Society for Sex-Specific Oral and Maxillofacial Surgery recently reported on a study that found no obvious differences between male and female teeth.

Headed by Prof. Ralf J. Radlanski from the Centre for Oral and Maxillofacial Surgery at the Benjamin Franklin Campus of Charité Univer- sitätsmedizin Berlin, the researchers explored whether the sex of an indi- vidual could be identified if only the front teeth were considered. This was tested by having participants evaluate 50 images of the anterior oral region of men and women aged between 20 and 75. The lip area was not shown.

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