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RESEARCH IDEAS

Correlation does not imply causation

Sir, your readers may not know that there is a significant correlation (99.26%) between the divorce rate in Maine, USA and the per capita consumption of margarine over 2000–2009.¹ This may have little to do with dentistry, however, it raises an important counterpoint to an issue raised by my esteemed colleagues Dr de Gea Rico and Dr Williams in their recent letter to the *BDJ*.²

In the letter, they highlight the findings of Dayer *et al.*'s 13 year Lancet study into the changing incidence of infective endocarditis (IE) since the adaption of the NICE guidelines.^{3,4} (I would similarly urge my dental colleagues to remain vigilant for the sign and symptoms of IE especially in patients at high risk for the condition.)

The headline finding of the study was the significant increase of IE in England since the introduction of the 2008 NICE guidelines and abolition of antibiotics prophylaxis.

Importantly, the study highlighted that it could not prove a causal link between the cessation of antibiotics prophylaxis and an increase in IE incidence. There were no data on the causative organism which led to IE episodes. This is clearly outlined in the study and undermines any assumption that oral bacteria, such as *Streptococcus viridans*, may be causally linked to episodes of IE. In fact Dayer *et al.* speculated about other possible non-oral causes for the increase in IE incidence. Interestingly, the study also highlighted the incidence of IE increasing prior to the introduction of NICE guidelines, for unknown reasons, which may suggest a non-oral cause for the increase.

The authors of the study do point out that their analytical model was based upon several estimates which in itself could have led to potential errors. Readers should be wary of drawing causal conclusions from the data outlined in the IE study as much as the spurious suggestion that chemicals in margarine were responsible for matrimonial disharmony in the population of Maine in the previous decade.

The scope of Dayer *et al.*'s paper is commendable and its findings remain

ORAL HEALTH CONSEQUENCES OF THE CRISIS IN SYRIA

Sir, the humanitarian crisis in Syria continues to negatively impact many Syrian refugees' access to quality healthcare in neighbouring countries.^{1,2} During the crisis, hundreds of dental clinics have been destroyed or closed as a result of the strikes from the different parties involved in the war, and thousands of highly qualified dental professionals from all dental specialties have left Syria. In response, and with help from medical and charity organisations, dentists from various specialties have established several dental clinics in border regions of Turkey (Urfa, Killis, Reyhanli) and Jordan (Zatari Camp) – sometimes just a few kilometres from the Syrian borders – to provide the Syrian refugees with much needed oral health care. To the best of our current knowledge, 19 dental clinics for refugees have been established in the regions bordering Syria, with 13 of them in Turkey: 4 in Urfa, 2 in Killis, 2 in Reyhanli and 5 smaller primitive dental clinics in the refugee camps bordering Syria; and 6 others in Jordan (Zatari Camp). These clinics are lacking in resources, such as radiographic machines, important dental materials, and sterilisation protocols and equipment. They are especially ill-equipped to deal with facial injuries, and this has detrimental physical and emotional effects on their patients. This minimalism equates them with 'field hospitals'.³

Reported adverse consequences of the war among the refugees include decreased oral hygiene and increased periodontal diseases including chronic generalised gingivitis and periodontitis. When they were asked why they do not brush their teeth, most patients reported that they would rather buy food for their children than buying a toothbrush and toothpaste. The rate of dental caries and odontogenic infections, including acute periapical abscesses and even orofacial infections, have increased. Traumatic injuries in the maxillofacial and temporomandibular

regions, including both bony and soft-tissue injuries, have immensely increased in incidence and severity. This includes amputations, facial lacerations and fractured bones (temporomandibular joint, maxillary, mandibular and nasal), as well as injuries to the teeth and surrounding dental structures. Some of these problems were the result of poor treatments that were performed inside Syria because of either a lack of proper dental/medical materials and supplies or the unavailability of expert surgeons/specialists or both.

Furthermore, there has been a continuous decrease in financial support from governmental and non-governmental organisations for dental initiatives; this shortage should lead to adjusting the strategies to focus more on preventive procedures and positive psychological support to those who are in dire need. Lastly, as this humanitarian crisis worsens there is a desperate need for action from the dental community to build more awareness and strengthen efforts in mitigating the tragic medical and dental consequences of what is being labelled as the 'greatest humanitarian tragedy of our times'.⁴

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interesting. Though perhaps most importantly it keeps IE in the forethoughts of the dental profession and highlights the evolving nature of the research on which our clinical guidelines are built.

Adil Aslam, by email

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