Weight problems in children

BACKGROUND

Both dental caries and underweight/overweight/obesity are public health concerns for which the dentist is ideally situated to provide information and guidance. In the United Kingdom, the National Institute for Health and Care Excellence (NICE) advises that health care professionals should use their clinical judgment when measuring height and weight, which are components of the body mass index (BMI). Health Education England has taken the position that every interaction with health care professionals should optimize lifestyle choices of their patients. Based on these initiatives, specialists in pediatric dentistry (SPDs) should be able to identify children who are underweight, overweight, or obese when they come for dental care and then offer parents help to alter their diet and address other aspects that would lead to improved health. The current patterns of practice in this regard and any perceived problems related to performing these duties were surveyed in the UK SPD group.

METHODS

The survey questions were focused on measurement of the child's height, weight, or body mass index (BMI); when measurements were obtained; reasons why the measurements were not obtained; actions taken; and dentists' feelings about their role in this regard. An online survey was then made available to 118 SPDs through the British SPD (BSPD) membership listing in May 2017, with a reminder to complete the survey posted in July 2017.

RESULTS

Forty-nine (42%) of the dentists responded, with 46 responses complete enough for analysis. Of the respondents, 44 were consultants in pediatric dentistry, 1 was a specialist, and 1 was a clinical dental director. Eighty-five percent of the respondents worked in hospital dental services and 15% in the community.

Eighty-seven percent of the dentists measured weight, 76% measured height, and 63% calculated BMI routinely. Seventy-two percent used an online tool to calculate the BMI. All of those who calculated BMI had taken some action at least once when an abnormal result was obtained. Ninety percent had notified the child's general practitioner, 48% had provided dietary advice, and 41% had referred the child to a pediatrician. Of the 6 practitioners who measured height and weight but not BMI, 4 did not calculate BMI because they didn't know what to do with the result and 2 trusted that someone else would.

Thirty-nine of the dentists completed a free text question that was designed to offer the opportunity to share their thoughts about the dentist's role in diagnosing children who were either underweight or overweight/obese. All of the respondents believed they had a role in this situation. They acknowledged that they saw the child more frequently than other health care practitioners did and could comment on weight changes. Because a poor diet not only leads to weight problems but also to dental caries, they saw they had a natural reason for being concerned and could guide parents regarding diet. The attitude of these dentists was that they were willing to contribute to this holistic approach to health and believed it was their duty to do so. Fifty-two percent of the entire group of respondents were involved in teaching undergraduate dental students.

Among the challenges dentists found in managing weight was the difficulty of the discussion itself. In addition, they felt there was a lack of clear guidance dictating their actions and no referral pathway they could use to refer the patient and family for support. They identified a need for local protocols to provide the needed guidance as well as help in conducting discussions with parents that would not cause upset or a deterioration in the patient-clinician relationship.

RECOMMENDATIONS

Many of the dentists felt unprepared regarding the calculation of BMI or the interpretation of its results, so dental schools need to incorporate BMI calculation, interpretation, and management into undergraduate offerings. Practicing dentists should have dedicated training offered to them so they can feel empowered to contribute to pediatric patients' holistic care. Because pediatric patients are not free to choose their diets or activities, dentists need to advocate for them with parents.

Clinical Significance

Many resources are available to help dentists in calculating and interpreting BMI results so that they can share them with parents of pediatric patients. Dentists need to be made aware of these resources. The survey showed that dentists support strategies to improve their efforts to identify and address weight problems of their patients, but because they feel unprepared, many do not routinely calculate BMI or act on any abnormal results that are obtained. Improving the guidance and building the confidence dentists need to address these problems are areas where educational offerings could make a valuable contribution to caring for some of the most vulnerable patients.

Clark E, Tuthill D, Hingston EJ: Paediatric dentists' identification and management of underweight and overweight children. *Br Dent J* 225:657-661, 2018

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PERIODONTAL IMAGING

Cone beam computed tomography

BACKGROUND

The diagnosis of periodontal disease relies not only on an evaluation of the patient's signs and symptoms and a survey of his or her medical and dental history but also on the results of radiographic evaluation. Conventional radiographic imaging has played a decisive role in determining the diagnosis, but newer methods may surpass the conventional imaging's quality of results. Cone-beam computed tomography (CBCT) is a newer technique that offers the ability to eliminate distortions and to visualize structures in all 3 orthogonal planes. However, it remains more expensive than conventional techniques and delivers a higher dose of radiation to the patient. A comparison was done between conventional and 3-dimensional imaging for evaluating infrabony defects, height of the alveolar bone crest, furcation involvement, and periodontal ligament space.

METHODS

A systematic review was done on 13 studies that had been identified through a search of the MEDLINE and Embase databases. Of these studies 4 covered infrabony defects, 3 discussed the height of the alveolar bone crest, 3 were on furcation involvement, 2 discussed periodontal ligament space, and 1 covered infrabony defects, furcation involvement, and the periodontal ligament space. All but 4 of the studies were in vitro investigations and all used different scanning parameters, so it was difficult to compare their findings directly.

RESULTS

Infrabony Defects

When artificially created infrabony defects were considered, the measurements made using periapical radiographs and CBCT were compared with control measurements from dry skulls. CBCT was both more precise and more accurate than conventional radiographs. In addition, CBCT offered the ability to identify the defects in both the buccal and lingual aspects of the teeth.

One study assessed the accuracy of CBCT in identifying clinical bone defects by comparing observations made using tomographic images with those directly observed on skulls. CBCT was able to identify 3 times as many fenestrations as direct visualization, leading to several false positive results. Another study compared periodontal defect measurements made using periapical radiographs, panoramic films, CT, and CBCT with histological specimens. The image quality obtained using CBCT was better in terms of contrast, brightness, distortion, overlay, and clarity of structures. CBCT was also able to demonstrate smaller deviations than had been viewed on histological specimens.

Alveolar Bone Crest Height

Because of its accuracy depicting horizontal bone loss, CBCT was more accurate than conventional radiographs for evaluating alveolar crest height in most studies. One study found that the diagnostic accuracy of CBCT images for horizontal bone loss in anterior tooth sites was low, however. One in vivo study compared bone height measurements from digital intraoral radiographs with CBCT images to obtain surgical measures to assess the treatment outcomes after regenerative interventions. CBCT yielded satisfactory results and reliably detected graft resolution compared to direct surgical measures.

Furcation Involvement

The accuracy of CBCT imaging for detecting artificially created furcation involvement ranged from 78% to 88% in macerated pig mandibles. A comparison of intraoral digital radiographs and CBCT images also found greater accuracy for the CBCT method. When in vivo studies were considered, CBCT and surgical measurements agreed in 84% of cases. Thus 3-dimensional radiographic techniques have proved extremely useful for assessing the outcomes after furcation defect treatment.

Periodontal Ligament Space

The studies on the various imaging techniques to estimate periodontal ligament space have reported varying results. Some find CBCT to be more accurate than conventional radiography for detecting marginal widening of the periodontal space. However, periapical radiographs have been found superior for measuring periodontal spaces equal to or smaller than 200 μm. The results may be the result of observers' lack of experience with CBCT.

DISCUSSION

Image quality with CBCT tends to be superior to that of conventional modalities. A number of factors can influence image quality and imaging results. These should be considered when comparing