(vegetables, whole fruit, whole grains, nuts and legumes, long-chain fats, and polyunsaturated fatty acids), 4 for which lower consumption is recommended (sugar-sweetened beverages and fruit juice, red and processed meats, sodium, and trans-fats), and 1 for which moderate consumption is recommended (alcohol). Participants also completed standardized questionnaires noting heritage background, age, gender, annual household income, education, duration in the United States/nativity status, and current health insurance. Dental care utilization was also measured based on the time since the last dental visit, and energy intake was estimated using the National Cancer Institute (NCI) method. Adjustments were made in this method for age, sex, Hispanic/Latino background, clinical center, weekend versus weekday sequence, and the self-reported intake amount of foods.

RESULTS

Forty percent of the sample was of Mexican origin and 76% were foreign-born. The average age was 44 years. Four percent of the sample had severe periodontitis, which was defined as at least 30% sites with a CAL exceeding 5 mm. The highest prevalence of severe periodontitis was found among Cuban Americans. Those with severe periodontitis had more permanent teeth, deeper PDs, higher CAL, and more BOP sites than those without severe periodontitis. Demographics of the group with severe periodontitis included male gender, at least age 45 years, lower income and education, foreign-born, smoked, had not visited a dentist in the previous year, and had diabetes mellitus.

Participants with higher AHEI-2010 scores had lower odds of severe periodontitis and demonstrated a significant dose-response relationship for this factor. Adjustments for sociodemographic status did not alter these findings. Adjusting for smoking, diabetes, and energy intake attenuated the relationship with severe periodontitis somewhat. These inverse relationships were strongest in individuals of Central/South American, Cuban, or mixed/other backgrounds.

Individuals with the highest consumption of whole fruit and the lowest consumption of red/processed meats demonstrated significantly lower odds of having severe periodontitis than individuals with the lowest scores for these same foods. Subjects showed a significant trend toward having lower odds of having severe periodontitis with higher consumption of whole grains. Another significant trend linked higher odds of having severe periodontitis and higher consumption of polyunsaturated fats. Nuts, legumes, trans-fats, long-chain fats, sodium, and alcohol demonstrated no association with severe periodontitis.

DISCUSSION

Consuming a higher-quality diet was associated with lower odds of having severe periodontitis in Hispanic/Latino persons. Diet is a significant factor in the pathogenesis of periodontitis among this ethnic group of individuals.


Clinical Significance

The better the dietary quality, the lower were the odds of having severe periodontitis in this Hispanic/Latino population, regardless of their specific heritage. Causation remains to be proved in future studies.

Salazar CR, Laniado N, Mossavar-Rahmani, et al: Better-quality diet is associated with lower odds of severe periodontitis in US Hispanics/Latinos. *J Clin Periodontol* 45:780-790, 2018

PRESCRIPTIONS

Antibiotic and opioid prescriptions by dental professionals

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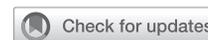
BACKGROUND

Inappropriate antibiotic and opioid prescriptions and uses are being targeted as significant public health concerns. Dentists prescribe 10.4% of all outpatient antibiotics in the United States, making them the top antibiotic prescribers after primary care physicians. Dentists prescribe 6.4% of all outpatient opioids and are more likely to prescribe opioids than primary care physicians. Areas with more dentists per capita are also associated with increased rates for opioid prescribing. Updated guidelines for prescribing antibiotics for prophylaxis and opioids for pain have been formulated. For example, antibiotic prophylaxis for most patients to prevent infective endocarditis and prosthetic joint infection is no longer recommended. For opioid prescriptions, the Centers for Disease Control and Prevention (CDC) has published guidelines recommending prescriptions for agents that last 3 days or fewer, with more than 7 days of therapy

considered a rare necessity. The opioid and antibiotic prescribing patterns of dentists in the United States for Medicare Part D beneficiaries were investigated.

METHODS

A retrospective cross-sectional analysis of national 2014 Medicare Part D Prescriber Public Use File (PUF) data was conducted. The 99,797 providers with dental-related disciplines were profiled along with their medication-prescribing records. Outcomes of special interest were mean days' supply and mean number of claims reported per claim, per beneficiary, and per prescriber discipline.

RESULTS

Provider Profiles

General dentists accounted for 93.5% of the providers, with 93.1% submitting at least 11 claims for antibiotics and 33.4% at least 11 claims for opioid drugs. Dental surgeons were more likely to prescribe opioids than general dentists, with 87.6% of dental surgeons and 29.7% of general dentists prescribing opioids. General dentists were significantly more likely to prescribe antibiotics than dental surgeons, with 93.5% of general dentists and 86.7% of dental surgeons prescribing antibiotics.

Drug Prescription Profiles

Of the beneficiaries of prescriptions by general dentists, 16.8% received an opioid and 64.0% received an antibiotic. Of the beneficiaries of prescriptions by dental surgeons, 37.3% received an opioid and 38.8% received an antibiotic.

Claims for medications prescribed by dentists were submitted for 6,724,372 prescriptions, with 58.7% of these for antibiotics and 19.5% for opioids. About 227,492 beneficiaries received more than 1 claim for opioids. Just 7.9% of the dental opioid prescribers never prescribed multiple opioids claims for a beneficiary.

The most commonly prescribed antibiotic class was aminopenicillins, which includes amoxicillin and ampicillin. The most commonly prescribed opioid was hydrocodone and acetaminophen, which accounted for 74.6% of all opioid claims. Clindamycin accounted for 12.7% of all the antibiotic prescriptions. Immediate-release opioids accounted for 99.97% of all opioid claims.

For antibiotics, the days' supply per claim was between 1 and 90 days, with a mean of 6.9 days. For opioids, the days' supply per claim was between 1 and 44.5 days, with a mean of 3.6 days. Nearly 57% of dental providers who prescribed opioids exceeded the CDC guideline of 3 days. Sixty-nine percent of dentists in the highest quartile of opioid prescribers were also in the highest quartile of antibiotic prescribers.

When the antibiotic prescriptions were considered by state, North Dakota had the highest number of antibiotic claims per 100 beneficiaries and Alaska had the lowest (108.4 claims/100 beneficiaries versus 39.7 claims/100 beneficiaries, respectively). Seven of the 10 states with the most antibiotic claims per 100 beneficiaries were located in the Midwest region. Washington, DC was where the highest mean antibiotic days' supply per claim (8.1 days) and mean antibiotic days' supply per beneficiary (10.9 days) were seen. The lowest values in these categories were seen in Iowa, with 4.7 days for antibiotic days' supply per claim and 6.4 days for antibiotic days' supply per beneficiary. Seven of the 10 states or district with the highest mean antibiotic days' supply per beneficiary were located along the East Coast.

When the opioid prescriptions were considered by state, Mississippi had the highest number of opioid claims per 100 beneficiaries and New York had the lowest (47.9 claims/100 beneficiaries versus 12.9 claims/100 beneficiaries, respectively). Nine of the 10 states with the most opioid claims per 100 beneficiaries were located in the South region. Vermont had the highest mean opioid days' supply per claim at 4.4 days and had the highest mean opioid days' supply per beneficiary at 5.8 days. The lowest values in these categories were seen in South Dakota, with 2.9 days and 3.3 days, respectively. Four states or district among the 10 states or district with the highest mean opioid days' supply per beneficiary were also among the 10 states or district with the highest mean antibiotic days' supply per beneficiary.

DISCUSSION

Seventy-eight percent of the medications prescribed by dentists are antibiotics or opioids. Those who frequently prescribe antibiotics also tend to frequently prescribe opioids. Differences were noted between general dentists and dental surgeons in their prescribing behaviors and between the various geographic areas in the United States. The guidelines for length of drug supply per claim and per beneficiary tended not to conform to the recommended limits.

Clinical Significance

Both antibiotics and opioids should be targeted for interventions to decrease patterns of unnecessary prescribing. With fewer of these prescriptions and shorter lengths of time for these prescriptions to cover, some of the public health concerns associated with these medication classes may be addressed.

Koppen L, Suda KJ, Rowan S, et al: Dentists' prescribing of antibiotics and opioids to Medicare Part D beneficiaries: Medications of high impact to public health. *J Am Dent Assoc* 149:721-730, 2018

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PREVENTIVE DENTISTRY
Reminders to perform oral hygiene

Check for updates

BACKGROUND

Effective oral hygiene is an essential part of orthodontic treatment, yet it can be difficult to achieve because of the appliances used to achieve a harmonious arrangement of the teeth. Plaque can increase, patients can experience gingival irritation, and white spot lesions can develop if the teeth and supporting structures are not maintained during orthodontic care. Reminder therapy has been effective in improving the results of treatment in various health fields. The influence of reminder therapy on plaque index, gingival index, and white spot lesion development in patients undergoing orthodontic treatment was investigated via a systematic review of the literature and meta-analysis of the evidence presented there.

METHODS

The databases searched included LILACS, PubMed, SciELO, Scopus, Web of Science, EMBASE, LIVIVO, Cochrane Library, OpenThesis, and OpenGrey. Seven articles met the inclusion criteria and were analyzed.

RESULTS

The 574 subjects had a mean age of 12.8 to 18.7 years in the 7 studies, with female subjects in the majority in all but 1 of the reviews, which did not indicate gender ratios. All patients were given hygiene instructions through videos or lectures at the first visit. For the reminders, 3 studies used exclusively text messaging, 1 compared text messages and phone calls, one sent the reminders via notification through an app, and 2 associated text messaging with videos, voice messages, and scientific articles. The reminders were sent only to the parents/guardians in 2 studies, 4 studies sent them only to the patients, and 1 sent reminders to patients older than 18 years but only to guardians for patients under age 18 years.

Six studies had a low risk of bias. One had a moderate risk of bias. Overall, the evidence collected was considered to be of high quality.

All studies performed evaluations of plaque, gingival status, and white spot lesions at baseline and used control and experimental groups. Four studies presented sufficient data for quantitative analysis. Major differences were noted between the oral hygiene and oral clinical condition in the control and experimental groups. The experimental groups had lower scores for the plaque and gingival indexes and fewer white spot lesions than the control groups.

DISCUSSION

Orthodontic accessories can make it difficult to maintain sufficient oral hygiene, but optimal oral health maintenance is essential during orthodontic care. Sending reminders to reinforce the need for oral hygiene via text, video, or voice messages achieved the goal of improving patients' oral health status as determined by their plaque index, gingival index, and white spot lesion development.

Clinical Significance

Reminder therapy appears to be a valuable tool in helping young patients maintain good oral health during orthodontic treatment. Often these patients can become less motivated during the middle stretch of treatment, allowing themselves to slack off in relation to oral hygiene activities. Sending reminder messages via a smartphone is an easy way to touch base with patients and keep them motivated and aware of the importance of performing good oral hygiene. Parents or guardians can also be alerted to check with their younger offspring to ensure that proper measures are being taken to reduce plaque and avoid gingival irritation and white spot lesion development.

Lima IFP, Vieira WA, Bernardino IM, et al: Influence of reminder therapy for controlling bacterial plaque in patients undergoing orthodontic treatment: A systematic review and meta-analysis. *Angle Orthod* 88:483-493, 2018

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