Study estimates increase in healthy life years through sugar, fat and salt taxes

By DTI

MELBOURNE, Australia: Modelling the effect of different combinations of taxes on sugar, salt and fat and a subsidy on fruits and vegetables on the death and morbidity rates of Australians, a new study has found that imposing a tax on sugar could avert about 270,000 disability-adjusted life years. In addition, the research estimated that, when combined to maximise benefits, taxes and subsidies could reduce the country’s health care spending by A$1.4 billion (€2.5 billion).

In the Western world, non-communicable diseases, such as obesity, diabetes, cardiovascular disease and dental caries, are mainly attributable to an unbalanced intake of fats, sugars and salt. In order to tackle the burden of these diseases, an increasing number of countries have already implemented or proposed taxes on unhealthy foods and drinks. However, the actual cost-effectiveness of levies and subsidies on certain nutritional items to reduce the burden of diet-induced diseases is uncertain and can only be estimated.

In the current study, researchers at the University of Melbourne simulated the effect of different combinations of taxes on unhealthy foods and a subsidy on fruits and vegetables based on the Australian population of 22 million in 2010. The model analysis set the sizes of the taxes and subsidy such that combined there would be less than a 1 per cent change in total food expenditure by the average household.

The results showed that a tax on sugar had the greatest impact among the taxes simulated. A sugar tax could avert 270,000 disability-adjusted life years (DALYs), the researchers calculated. DALYs are years of a healthy lifespan that are lost to disease. This equals a gain of 1.2 years of healthy life for every 100 Australians alive in 2010, which is a health outcome that few other public health interventions could deliver across the whole population, according to the researchers.

In comparison, a salt tax was estimated to save 130,000 DALYs, a saturated fat tax 97,000 DALYs and a sugar-sweetened beverage tax 12,000 DALYs. As for a fruit and vegetable subsidy, the study was unable to determine an isolated clear health benefit, although it too made for additional averted DALYs and reduced health sector spending, the researchers wrote.

The study adds to growing evidence of large health benefits and cost-effectiveness of using taxes and regulatory measures to influence the consumption of healthy foods. Based on the results of the models, the formulation of a tax and subsidy package should therefore be given more prominent and serious consideration in public health nutrition strategy, they concluded.

The study, titled “Taxes and subsidies for improving diet and population health in Australia: A cost-effectiveness modelling study”, was published online on 14 February in the PLoS Medicine journal.
Sunstar supports first European Perio-Diabetes Workshop

By DTI

MADRID, Spain: The link between periodontal disease and diabetes has often been a topic of scientific research. In collaboration with oral health care provider Sunstar, the European Federation of Periodontology (EFP) and the International Diabetes Federation (IDF) recently hosted a workshop in Madrid to address the connection between both diseases, among other topics.

In collaboration with Sunstar, the meeting aimed to delve deeper into the relationship between periodontitis and diabetes—a topic that the company has been working on for some time, both on a research and promotional level. Over the course of two days, the panel of experts held wide-ranging debates regarding the existing connections between these two diseases, current epidemiological evidence and the effect of intervention trials on metabolic parameters.

The conclusions drawn from the workshop will be reported on at the end of this year with the aim of new advancements in research on the bi-directional relationship between dental health and diabetes. Sunstar has been promoting and supporting this research for more than 20 years, owing to several of the company’s founding members being involved in the study of diabetes and to the company’s firm commitment to providing the best oral care.

Sunstar drives research

As proof of its commitment, Sunstar is participating in a number of other initiatives this year, such as a second workshop with the American Academy of Periodontology (AAP) and the EFP on the classification of periodontal and peri-implant diseases, which will be held in Chicago in the US in November. Furthermore, the company, together with the Spanish Society of Periodontology and Osseointegration (SEPA), will sponsor multiple clinical studies focused on the role of dental practices in identifying prediabetes and undiagnosed cases of diabetes. Sunstar also announced its sponsorship of various studies on the importance of oral hygiene advice provided by primary care physicians.

At the end of the year, the 21st edition of the Joslin-Sunstar Diabetes Education Initiative symposium will be held in Shanghai in China. This project, promoted by the Joslin Diabetes Center in Boston in the US and the Sunstar Foundation, was launched in 2008 with the purpose of raising awareness among doctors, dentists and patients about the bi-directional relationship between oral health and diabetes mellitus. Furthermore, the symposium creates a platform for debate by experts in the field.

Research grants for young professionals

For several years, Sunstar has collaborated with various scientific societies and clinics to promote research in the field of oral health and to determine its relationship to general health. This is especially evident among new dental professionals, with the most innovative being offered research grants. Examples are the Sunstar Innovation Grant, offered together with the AAP, and the SEPA-SUNSTAR grant, together with the SSP. The awards have resulted in, among others, the release of the Care for Your Gums, Control Diabetes publication by a dental hygienist in collaboration with the Sociedad Española de Diabetes (Spanish diabetes society), as well as the launch of the first Spanish study to determine the efficiency of dental consultations in the early diagnosis of diabetes.

Over the last few years, Sunstar has introduced a series of social initiatives with the aim of bringing knowledge to all levels of society in order to improve actual diabetes diagnostic, treatment and prevention figures.
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SEM image of dentine surface with sealed dentine channels after application of Colgate® Sensitive Pro-Relief™ toothpaste

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References:
Prevalence of Diabetes Mellitus in Odontogenic Infection and Oral Candidiasis

By Dr. Aparna Sharma, UAE

Diabetes Mellitus

Diabetes mellitus (DM) is a group of complex multi-system metabolic disorders resulting from a deficiency in insulin secretion caused by pancreatic β-cell dysfunction and/or insulin resistance in liver and muscles. Diabetes affects more than 9% of the adult population and has a dramatic impact on the healthcare system because of high morbidity and mortality among affected individuals.

Type 1 diabetes results from cellular-mediated autoimmune destruction of pancreatic β-cells, which usually leads to total loss of insulin secretion; in contrast, type 2 diabetes is caused by resistance to insulin combined with a failure to produce enough additional insulin to compensate for the resistance. Type 2 diabetes is commonly linked to obesity, which contributes to insulin resistance through elevation of circulating levels of free fatty acids derived from the adipocytes, these free fatty acids inhibit glucose uptake, glycogen synthesis and glycolysis. In many obese individuals, insulin resistance is compensated for by increased insulin production. However, in one third of obese individuals, β-cell mass is reduced by a marked increase in β-cell apoptosis, which results in inadequate production of insulin.

The prevalence of diabetes mellitus (DM) in odontogenic infections and oral candidiasis is influenced by neutrophil functions, allowing microbial invasion and multiplication. During the period of infection, a high blood sugar level usually complicates both odontogenic infections and candidiasis. All white blood counts, C-reactive protein levels and erythrocyte sedimentation rates show increased levels in DM (+ve) patients than in DM (-ve) patients. Polymorphonuclear leukocytes from diabetic patients, especially those with candidiasis, produced fewer free oxygen radicals and exhibited reduced phagocytosis and intracellular killing of Candida cells associated with the reduced O2- generation during the infection. These suppressed neutrophil functions increase after treatment but do not reach control levels. These studies indicate that DM is a predisposing condition for odontogenic infections and oral candidiasis, that DM complicated infections become severe because of neutrophil suppression, and that examination of blood sugar level should be essential for patients with oral infections.

It has generally been assumed that oral candidiasis occurs with increased frequency in patients with diabetes mellitus. Several research studies have been done on this and it has been concluded that in the diabetic group, no relationship was found between recent use of antibiotics, total or differential white blood cell count, serum glucose, presence of diabetic retinopathy, or glycosylated haemoglobin values in Insulin Dependent Diabetes Mellitus (IDDM). In IDDM there is a predisposition to oral candidiasis and it has been shown that this predisposition is independent of glucose control.

In patients with type 2 DM i.e. Non-Insulin Dependent Diabetes Mellitus (NIDDM), the degree of disease control, as measured by fasting sugar and urinary glucose concentration, is unrelated to oral candidiasis. However, a glycosylated haemoglobin concentration above 12% is significantly associated with oral yeast infection, which suggests that fungal infection of mucous membranes may only be significantly associated with diabetics in patients with a longer history of hyperglycemia.

Tobacco smoking and wearing dentures continuously day and night have been found to be important local factors in chronic oral hyperplastic candidiasis. As per the recent studies, the presence of dentures and glycosylated haemoglobin concentration are independent predictors of the risk of developing candidiasis. This finding suggests that diabetics are more susceptible to fungal infection in areas of moisture and trauma, but, in the absence of dentures, high glycosylated haemoglobin concentration is the most important risk factor.

Conclusion

Being a Diabetic may not place a person at increased risk of fungal infection / other odontogenic infections, unless diabetes control is very poor as evidenced by a glycosylated haemoglobin concentration of more than 12% and, particularly, if the person maintains a very low level of oral hygiene.
New research explores effect of strawberries in oral cancer therapy

By DTI

COLUMBUS, Ohio, USA: As previous laboratory studies have suggested that dietary administration of whole strawberries has substantial potential as a strategy for oral and esophageal cancer prevention, researchers at the Ohio State University have set out to analyze how the fruit’s cancer-inhibiting chemicals affect the oral microenvironment in heavy smokers. The recently presented initial results revealed some intriguing differences between smokers and non-smokers.

“When people eat strawberries, they chew and swallow the fruit quickly. We wanted to develop a method of increasing exposure in the mouth to the beneficial phytochemicals that have been linked with oral cancer prevention, and look for potential differences in that way the salivary enzymes in smokers versus non-smokers metabolize them,” explained study leader Dr. Jennifer Ahn-Jarvis, a postdoctoral fellow at the Ohio State College of Dentistry.

In this approach, Ahn-Jarvis and her team designed a pilot clinical trial to analyze the effects of a specially developed strawberry candy with the nutritional equivalent of two and a half cups of whole strawberries in a group of heavy smokers compared with a control group of individuals who had never smoked. To establish differences in salivary enzyme activity affecting the phytochemical components of strawberries between the two groups, participants were asked to consume the strawberry confection or a placebo four times a day for one week and follow a diet absent of other red and purple fruits and vegetables.

The team then collected saliva and oral tissue samples. From these, they observed significant differences between smokers and nonsmokers in salivary enzyme activity and strawberry metabolites in the mouth after administration of the strawberry confection. In addition, the researchers investigated the expression of a select group of 44 genes associated with cigarette smoke and oral cancer risk and were able to validate seven genes independently associated with smokers versus non-smokers.

“This initial data confirmed that something is very different about the oral environment of smokers, which may ultimately influence not only cancer risk but also the potential effectiveness of food-based cancer prevention strategies,” Ahn-Jarvis concluded. “Successful development and use of our novel confection delivery system paves the way for its use in a larger study, which will allow us to more precisely evaluate the effects of smoking and strawberries on molecular endpoints related to oral cancer development.”

Additional analysis of the study data is underway to determine whether there is a correlation between oral exposure time to anthocyanins and reduced oral cancer risk among smokers. Studies are also ongoing to identify strawberry-modulated genes in the oral cavities of smokers that may influence the development of oral cancer.

The initial results of the study were first presented at the annual meeting of the American Association for Cancer Research held from April 1 to 5 in Washington.

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Interview: “A preventative health care system is also a cost-efficient system”

By Kristin Hübner, DTI

On the occasion of this year’s World Oral Health Day (WHOID) on 20 March, Prof. Jörg Eberhard from the University of Sydney will be presenting the Asia Pacific WHOID lecture titled “Putting The Mouth into health — Time for a paradigm change in dentistry.” Dental Tribune Online had the opportunity to speak with Eberhard, who was appointed the university’s first Chair of Lifestyle Oral Health in 2015, about the role of preventative care in research and clinical practice and the general need for a more holistic view on medical conditions and oral health.

Dental Tribune Online: Can you explain what is implied by the title of your lecture, “Putting the mouth into health”? Prof. Jörg Eberhard: Research over the last several decades has shown that oral diseases are linked to general health and other diseases, including cardiovascular diseases, diabetes mellitus and rheumatoid arthritis.

The available evidence demonstrating this association is based on epidemiological studies, clinical intervention trials and knowledge of sound biological mechanisms. Irrespective of this body of knowledge, a holistic view on medical conditions that includes oral health has not been established in clinical medical practice. “Putting the mouth into health” stands for the strategic vision of overcoming this shortcoming and is aimed at improving the community’s health.

Do you think there is enough awareness among the public about the relationship between oral health, overall well-being and quality of life? There is very limited awareness of the link between oral and general health among the public; however, many health care professionals too are not aware of the association between oral and general health, even though other studies have shown that the overall health of patients is determined significantly by the well-being of patients. Oral health literacy education of the community and health care professionals is a major challenge for the dental profession. Furthermore, teaching of the association between oral and general health to medical students is necessary to establish a holistic view of health in the future.

What is the dental community’s role and that of national health care policies in this matter? The dental community must realise that dentistry is not limited to cavities and infected root surfaces, the work of the dental community should be aimed at easing a significant global disease burden and improving the health of the community. Policies must recognise oral health as an integral part of general health and social care. Policies, inseparable if the general need for a more holistic view on medical conditions and oral health services, inaccessible if the population’s health is to be maintained or improved.

Do you think that there should be an increased interdisciplinary exchange between dentistry and medicine? The exchange between dentistry, medicine and other health professions is fundamental to make substantial contributions to medical research and clinical health care in the future. A holistic view on health and disease is obviously highly relevant for clinical decision-making, since medical research has repeatedly demonstrated the interdependence of the various organ systems owing to similar generalised mechanisms.

With the rising burden of diseases such as periodontitis and diabetes on one hand and increasing awareness of prevention on the other, where does dentistry stand today? Since the introduction of fluouridation, the dental research community and the dental profession have neglected preventative pathways for decades, and research and clinical activities have focused on restorative treatments. This trend is epitomised by the use of artificial materials like dental implants to restore natural teeth, which have to be extracted because of the lack of adequate preventative treatment. This development is advanced by policies that reward restorative treatments and do not support preventative dental treatments.

What role does the increasing use of highly advanced and complex technology in dentistry play in achieving the goal of retaining the natural dentition for as long as possible? Highly advanced and complex technologies should be limited to those patients who have suffered trauma or who have severe disease or genetic determinations. Health care systems are not able to provide these technologies to the broader community and therefore these cost-intensive technologies are limited to the privileged. A preventative health care system, relieving individuals and the public from suffering and high costs. Thank you very much for the interview.

Editorial note: This is an abridged version of an interview published in Dental Tribune Asia Pacific Edition, Vol 15, No 3.

Study links periodontal disease, tooth loss and higher risk of death

By DTI

BUFFALO, NY, USA. A new study has suggested that overall mortality in the general population and older women in particular could be reduced by improving periodontal health. Evaluating data on over 57,000 postmenopausal women, researchers at the University at Buffalo found that those who saw the dentist less often had a significantly higher risk of death compared to those who had more dental visits per year.

In women who saw the dentist less than once a year, edentulism was 26 percent and 5.9 percent, respectively, compared to those with more dental visits. “Our findings suggest that older women may be at higher risk for death because of their periodontal condition and may benefit from more intensive oral screening measures,” said Dr. Michael J. LaMonte, lead author and research associate professor in the university’s Department of Epidemiology and Environmental Health. “However, studies of interventions aimed at improving periodontal health are needed to determine whether risk of death is lowered among those receiving the intervention compared to those who do not. Our study was not able to establish a direct cause and effect.”

According to the Centers for Disease Control and Prevention, almost 50 percent of adults in the U.S. aged 65 and over have some form of periodontal disease. It is estimated that about 20 percent of adults aged 65 and over in the country are edentulous.

The title of your lecture, “Putting The Mouth into health” stands for the strategic vision of overcoming this shortcoming and is aimed at improving the community’s health.
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