Intraoral device manoeuvres wheelchair

DTI, ATLANTA, GA, USA: Researchers at the Georgia Institute of Technology have developed the latest version of the intraoral Tongue Drive System, which is embedded into a dental retainer and is worn inside the mouth. The system, which only requires free movement of the tongue, allows people with high-level spinal cord injury to control a powered wheelchair.

The user receives a clinical tongue piercing, with which he can control the magnetic field sensors mounted on the device’s four corners. The sensors track the relative location of the magnetic piercing and transmit the data wirelessly to an iPod or iPhone. Software installed on this computer device interprets the user’s tongue position and moves the wheelchair accordingly.

In earlier versions, the sensors were attached to an externally worn headset. “One of the problems we encountered with this earlier version was that it could shift on a user’s head and would need to be recalibrated,” said Maysam Ghovanloo, associate professor at the institute. The new device sits tightly against the roof of the mouth because it is moulded from dental impressions. “The new device includes a lithium-ion battery and an induction coil to charge the battery. It is covered with an insulating, water-resistant material and vacuum moulded inside standard dental acrylic.”

The researchers also created a multifunctional interface, which holds the iPod, receives and delivers the sensor data, charges the iPod and is fitted with a holder for charging the dental retainer at night. The system can be hooked up to any standard electric wheelchair.

Ghovanloo and his team plan to begin testing the usability of the system by able-bodied individuals soon and then move onto clinical trials.

Waiting times accumulate

People living in Morley, Western Australia, should take their dental hygiene seriously. Latest statistics by the Government of Western Australia Department of Health have revealed that getting an appointment for a non-emergency dental procedure in the small suburb near the city of Perth can take up to three years.

According to figures of the latest Western Australia Health Performance report, similar waiting times have recently been observed throughout the state ranging between one and a half and two years on average. Besides Morley, patients from Ama­dale and Fremantle also had to wait 18 months for a dental appointment. Overall, more than 24,000 patients are waiting for treatment in public dental clinics.

Health officials said that the latest increase in dental appointments was due to rising awareness of people that are eligible for subsidised dental treatment including low-income families and pensioners. More than 400,000 people or one fifth of the population are currently estimated to fall into that category.

“I am a successful in our treatment, is it really important how we call the disease?”

I really think that the most important thing is to diagnose and intercept periodontitis as early as possible. A screening probing can reveal initial periodontal destruction and signs of inflammation quite easily, allowing for an early and effective intervention.

One clinical consideration may be as the important one.

Both forms of periodontitis share risk factors. What are the most common?

Periodontal disease is clearly the result of an unbalanced host response to the microbial challenge. It is therefore obvious that the genetic set-up of the host and the microbial composition of the biofilm are recognised as risk factors for the development of the disease.

Environmental factors like smoking and stress have also been correlated with the progression of the disease and its most severe forms.

How important would these be considered to be?

Unfortunately, it is still not clear. Some risk factors are related to the establishment of the disease, while others are related to the progression rate. As I said before, the evidence for risk factors related to a specific form is still weak and the evidence not as strong as we would like it to be.

You have presented at the 7th congress of the European Federation of Periodontology. What can participants expect to take home from the presentation?

I hope to clarify the similarities and differences between the two forms of periodontitis. We will go through the most recent published results on these issues and try to sort things out as much as possible.

I see this as a real challenge. I will share my thoughts and my doubts on some questions that every clinician has to face on a daily basis.

Thank you very much for this interview.

“Evidence for risk factors related to a specific form is still weak”

An interview with Dr Cristiano Tomasi, Sweden, on aggressive vs. chronic periodontitis

Dr Cristiano Tomasi

Aggressive and chronic periodontitis share many clinical features yet are also different in terms of development and progression. On occasion of Europerio 7 in Vienna this month, Dr Cristiano Tomasi from the University of Gothenburg in Sweden spoke with DTI Group Editor Daniel Zimmermann about the importance of early identification and why the identification of risk factors associated with both forms of periodontal disease remains difficult.

Daniel Zimmermann: Both chronic and aggressive periodontitis are complex infections. What is the basic microbiology underlying this disease?

Dr Cristiano Tomasi: Probably the most important microbiological feature is the establishment of a subgingival biofilm. The evidence suggests that periodontal disease is not related to a specific micro-organism but rather to a complex environment of many different species that live in symbiosis.

In a susceptible subject, the biofilm challenge will prompt a host response that will lead to the destruction of periodontal support.

It is estimated that between ten and 15 percent of adults in developed countries suffer from chronic periodontitis. Are there any figures available for the aggressive form?

This question is not easy to answer. In fact, even for chronic periodontitis, prevalence differs significantly, depending on disease definition and who the identification of risk factors associated with both forms of periodontal disease remains difficult.

The range in prevalence when mild cases are included may reach 40 percent in a population. The prevalence of the aggressive form, according to chronic. The diagnosis of both forms, however, is clinical and basically follows the same steps.

A problem is that in many cases it is not actually possible to identify the age at which the periodontal disease started, so it is not easy to draw conclusions on clinical features related to age of onset.

What are the main challenges in differentiating between both forms?

I really think that the most important thing is to diagnose and intercept periodontitis as early as possible. A screening probing can reveal initial periodontal destruction and signs of inflammation quite easily, allowing for an early and effective intervention.

One of the main differences between both forms appears to be the age group in which they commonly occur.

Age remains an important parameter for distinguishing the two forms. While severe cases at age 20 are commonly recognised as aggressive, those at 60 are mainly diagnosed as chronic.

I hope to clarify the similarities and differences between the two forms of periodontitis. We will go through the most recent published results on these issues and try to sort things out as much as possible.

I see this as a real challenge. I will share my thoughts and my doubts on some questions that every clinician has to face on a daily basis.

Thank you very much for this interview.