Fundamental implant misconceptions

HONG KONG, China: Investigating patients’ knowledge and perceptions regarding implant therapy, a Chinese study has found that an alarming number of participants had inaccurate and unrealistic expectations about dental implants. Moreover, the study determined that only 18 per cent felt confident about the treatment.

In the study, the researchers investigated preoperative information levels, perceptions and expectations regarding implant therapy via a questionnaire. Responses from 277 patients were obtained during 2014 and 2015 in three different locations in China (Hong Kong, Sichuan and Jiangsu). The analyses established that about one-third of the participants had mistaken assumptions about dental implants. According to the researchers, common misconceptions were that dental implants require less care than natural dentition, implant treatment is appropriate for all patients with missing teeth, dental implants last longer than natural dentition, and there are no risks or complications with implant treatment.

Overall, younger respondents (<45) and those with higher education (bachelor’s and postgraduate degrees) tended to have more realistic perceptions and lower expectations of the treatment outcome.

When asked about their level of knowledge, 63 per cent of the participants said that they were generally informed about implants, but only 18 per cent felt confident about the information they had.

Taiwan: Excessive implant prices and fees

TAIPEI, Taiwan: Considering the country’s per capita income, the cost of undergoing extensive implant treatment in Taiwan is equivalent to the price of an imported luxury car, the Taiwanese Consumers’ Foundation (CF) commented in relation to the findings of its new survey. In addition to disproportionately high implant costs, the CF survey found that Taiwanese implant patients were often faced with an array of vaguely labelled associated fees.

As its main finding, the survey identified considerably varying costs for implant treatment in the country. For example, it found that a patient in Chiayi County is charged around NT$40,000–NT$50,000 (US$1,249–US$1,628) for a single implant, while the fee in Hsinchu County is NT$60,000–NT$100,000 (US$1,865–US$3,109), the China Post reported.

Overall, prices for a single implant ranged from NT$40,000 to NT$150,000 (US$4,463), which is very expensive when considered in relation to the nation’s per capita income. According to the CF report, a Taiwanese earning a minimum hourly wage would have to work between 334 and 1,250 hours to afford one dental implant, while a person in Japan would have to work between 213 and 284 hours, and someone in the US between 77 and 159 hours.

Based on a Gallup survey, Taiwan had a median per capita income of US$16,882 in 2015, compared with US$50,840 in Japan and US$54,486 in the US.

The survey further identified a number of related costs, sometimes ambiguously named, charged for implant treatment, including a tooth implantation evaluation fee, a tooth implantation surgery fee, artificial tooth root, prosthetic crowns and periodontal prostheses. In addition, owing to a general lack of standardisation for implant treatment, participants reported confusion regarding the surgical treatment options they were offered, what the treatments actually entailed and whether the costs would be covered by their health insurance, the CF stressed.

In light of the findings, the foundation called on the Ministry of Health and Welfare and related government bodies to review current regulations that standardise the fees charged by medical care providers. At present, the fee schedule is not mandatory.

Advancing biocompatibility of implants

WAKO, Japan: Mimicking the adhesive properties of mussels, which are able to form a tight bond with smooth surfaces, scientists from the RIKEN research institute in Japan have successfully attached a biologically active molecule to a titanium surface, a metal used in artificial joints and dental implants, for example.

When it comes to functionality and compatibility, the achievements of nature are rarely matched by science. Mussels, for example, can attach tightly to almost any surface owing to a certain protein, l-dopa, which is able to bind very strongly even to smooth surfaces such as that of ceramics or metals.

Taking their inspiration from this particular feature, the Japanese scientists sought to imitate nature in order to enhance biocompatibility in medical applications. “We thought it would be interesting to try to use various techniques to attach a biologically active protein—in our case we chose insulin-like growth factor s, a promoter of cell proliferation—to a titanium surface like those used in implants,” lead author Chen Zhang from the RIKEN Nano Medical Engineering Laboratory explained.

Using a combination of recombinant DNA technology and treatment with tyrosinase, the researchers were able to create a hybrid protein that contained active parts of both the growth factor and l-dopa. In additional experiments, the team was able to confirm that the proteins bound strongly to the titanium surface and remained attached, even when the metal was washed in phosphate-buffered saline, a water-based solution.

“Using the special proteins as a template, we are currently researching how to build an artificial surface that offers the same characteristics as the mussel adhesives,” Zhang said. According to Dr Yoshihiro Ito, the team leader of the Emergent Bioengineering Materials Research Team of the RIKEN Center for Emergent Matter Science, this universal modification process could be used with other proteins too and may allow for the production of new cell growth-enhancing materials, with potential applications in cell culture systems and regenerative medicine.

The study, titled “A bioorthogonal approach for the preparation of a titanium-binding insulin-like growth-factor s derivative by using tyrosinase”, was published online ahead of print on 6 July in the Angewandte Chemie International Edition journal.
“We are working hard on targeting new markets”

An interview with Oliver Klein, BEGO Implant Systems

Dental implantology is in a constant state of change. New implants, surgical protocols and innovative materials present dental professionals with the challenge of identifying technically reliable and high-quality solutions. For the past 25 years, German dental company BEGO has been well known for its implant systems. Dental Tribune spoke with Oliver Klein, Director of International Sales and Business Development at BEGO Implant Systems, about the company’s implant solutions and its next steps into Asia.

Dental Tribune: Your BEGO Semados RS/RSX 3.0 implants have been available for over a year now. Intended for the restoration of incisors, they use an advanced connector design to ensure optimal stability. This technology is being used by an increasing number of international dental implant manufacturers. What distinguishes RS/RSX 3.0 from competing solutions?

Oliver Klein: The main advantage of the RS/RSX 3.0 is the true diameter of 3 mm. This implant line is mainly indicated for narrow anterior gaps. In addition, the user can select between two different implant types: a machined collar and a rough collar for solutions in the aesthetic zone. The dentist can choose the most suitable solution for all prosthetic indications from a wide range of abutments. Could you please elaborate on the Semados range of solutions? What different types of implants and prostheses does BEGO offer?

The BEGO Semados implant family consists of several implant lines for different indications. The well-known S-Line, launched 25 years ago, is the global top seller. Owing to its straight implant shape and the simple surgical procedure, this implant system became a reliable brand on the market. The tapered, self-condensing RI- and Mini-Line implants are mainly used in poor bone qualities and quantities. The RS/RSX Line—the implant twins—are becoming increasingly popular owing to their conical implant shape and self-tapping thread design. The concept of platform switching has been adapted to the RS/RSX-Line and an additional prosthetic line (PS-Line) has been developed. The implant family has been completed with a provisional implant (Pi-Line). A complete range of prosthetic components is available, including screw-retained bridge restorations (MultiPlus) and CAD/CAM solutions.

What is the major purpose of the BEGO Guide System, and how does it help dentists to better plan and place the company’s implants?

With the BEGO Guide Trays (available for the S- and RS/RSX-Line), the user can plan the implant positions properly using various software programs and reduce treatment time owing to predictable implant positioning and prosthetic rehabilitation. The convenient handling of the tools, especially the self-locking spoons, has more and more implantologists convinced.

BEGO have introduced its implant technologies in different markets, such as the Middle East and Asia Pacific. What has the response been so far? Which markets will be targeted next?

We have already been very successful in China and Taiwan, and our products are available in several smaller markets too. To provide a better service and strengthen our further growth in the APAC region, we opened an office in Hong Kong in February. We are launching our products in Vietnam in the third quarter of this year and are pursuing market entry to Thailand and Australia. We are very pleased to have had a great response regarding our product portfolio, quality and service. Products made in Germany and offered by a family-owned company are very popular in these markets. The same applies to the Middle East, where we are very active in Turkey, Saudi Arabia and Iran—just to name some countries. Also in this region, we are working hard on targeting new markets to extend our business and meet our substantial growth goals.

Thank you very much for the interview.
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“Dentists cannot blindly rely on the computer-guided approach”
An interview with Prof. Daniel Wismeijer, The Netherlands

Dental Tribune: Prof. Wismeijer, with the emergence of new digital technologies, novel treatment approaches have become available to dentists—particularly in the field of implant dentistry. While some implantologists embrace these new technologies, others are still sceptical of them. Why do you think that is?

Prof. Daniel Wismeijer: Novel technologies do not only affect implantology; they introduce digitisation into other areas of dental practice too. Consider the applications of intra-oral scanners and CEREC (Dentsply Sirona) machines and the use of new technologies in planning and designing customised implant superstructures. While some dentists use quite a lot of these tools, others do not use them at all and leave everything up to the dental technician. This largely depends on the dentist and his or her attitude towards digital technologies and digitisation in general—be it at home or in the dental practice.

Then, of course, dentists have to invest in this sort of technology, as well as learn it and be prepared to unlearn their current practices. This too depends on the dentist: is he or she ready to use new technologies or would he or she prefer to stick with what he or she had learnt previously? On the one hand, we see many young dentists start working with these new technologies immediately and thereby become very experienced in new treatment approaches. On the other hand, dentists who are more experienced in established treatment protocols are, of course, less inclined to unlearn the old and start learning the new technologies.

In the “Emerging technologies: Head to head” session at the EAO congress, you will be talking about computer-guided implant surgery. What advantages does such surgery offer? Has it already proven itself in research and clinical practice, and what results can it achieve compared with free-hand surgery?

In my opinion, guided surgery helps dentists become increasingly precise in our work. Digital technologies are proving themselves in implant dentistry and I think that they are improving with time. If the practitioner can plan up front where he or she wants to place an implant and what sort of superstructure he or she wants to put on top of that, and if he or she can also place the implant in that exact position and implement a superstructure that fits precisely, that will show that we have come a long way.

However, we are not there yet. There are still certain problems we have to deal with, problems in precision, problems in combining all the tools needed for guided implant surgery and the limitations of these tools. For example, in order to plan the position of an implant and its superstructure exactly, we have to superimpose CBCT scans and intra-oral scans using software. Factors such as voxel size and the absence of clear landmarks by which to superimpose the different scans correctly can affect precision and cause deviations between the planned and the realised positions. I am not saying that free-hand surgery is more precise, however, the free-hand surgical approach may in some cases be more rewarding, as at least then the practitioner knows what he or she can expect and what his or her limitations are.

So what can dentists do to better implement a digital workflow in implant treatment?

Dentists have to know that they cannot blindly rely on the computer-guided approach. They still need to get their heads around the technology first and stay focused while using it. Moreover, they have to accept that there is a learning curve and that computer-guided surgery will not work 100 per cent the first time it is applied.

In my lecture, I will be discussing the variables that influence the precision of the guided surgery workflow and what dentists are able to do to overcome associated problems. Primarily, they have to become comfortable with the different tools and software packages and gain experience in working with them. In the long run—and I think that we are not so far away from that now—computer-guided surgery is a treatment approach that will probably be much more precise than planning and placing implants without any guidance at all.

How will digital technology further change implant dentistry in the future?

One of the tools that I will be demonstrating during my presentation is a dynamic navigation system that provides real-time guidance based on the patient’s CBCT scan. During surgery, the dentist sees the planned implant position on a screen while sensors track the drill and the patient’s jaw and the system provides visual and tactile feedback to ensure that the dentist drills exactly at the planned osteotomy site.

Dynamic navigation systems like this one are the next step towards robotic-assisted implant dentistry. From there, it will not take much to develop a computer-steered robot arm that calculates whether the drill is in line with the planning and, supervised and handled by the dentist, drills the osteotomy. In various surgical disciplines, for example neurosurgery, operations are already being performed using robotic technologies, as they are able to perform much more precisely than the human hand alone. It is only a matter of time until these technologies enter dentistry as well.

Thank you very much for the interview.
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Growing a successful dental implant clinic

By DTI

In April 2016, Dr Ian Lane, a managing partner at Queensway Dental Clinic, together with Richard Elliott, Managing Director of Queenway’s Dental Laboratory, presented a webinar to a global audience of over 350 dentists, giving their insights into what they feel have been the most fundamental factors of growing a successful dental implant clinic.

Queensway Dental Clinic (www.queensway.co.uk) was founded in 1993, when Dr Paul Averley took over the north-eastern clinic. At the time, it was at the heart of an area where the population’s oral health was significantly lower than that of the national average. Over the next 23 years, the practice grew into the award-winning business it is today—a journey that Lane believes would not have been possible without the partners, specialists, nurses, managers, technicians and therapists who have invested their time and passion in every step.

Between 1998 and 2013, Queensway Dental Clinic was the largest referral centre for conscious sedation in the region, and the clinic treated over 100,000 patients during that time. However, as of 2011, the business model started changing and the partners turned their attentions to expanding the private side of the clinic. By applying the same principles learnt from building a successful NHS practice, Queensway Dental Clinic grew from a four-surgery practice into a 25-surgery practice over time.

Lane suggested that this success can largely be attributed to the Queensway ethos with its patient-centred approach to dentistry. “We focus on holistic care, meaning there is real choice for the patient, as well as ensuring that shared decisions are made, over which patients have full control.”

“Keen to Elicit”

Of course, it is not just the clinical skills that contribute to the success of an implant practice. Queensway Dental Clinic has striven to improve the training of its front-of-house staff to ensure that patients receive only the very highest standard of service from the moment they enter the practice. This has included sending the team on lunch-and-learn sessions with Nobel Biocare representatives, having cue cards developed to act as prompts on the phone, and giving each of the staff the necessary understanding of implant treatment options in order for them to communicate this effectively to prospective and current patients.

Furthermore, Queensway understands the importance of investing in the skills of its partners and takes great pride in the individual achievements of its team members. Indeed, the partners at Queensway Dental Clinic have all graduated from the Kois Centre in Seattle in the US—five of only 15 practitioners in the UK to have done so.

“The skills we have learnt at the Kois Centre have transformed the way we practice,” said Lane. “As well as improving the outcomes we can achieve for our patients, seeing many patients who have suffered from many different problems with their teeth, it’s vital that we have the skills—like those that the Kois Centre teaches so well—to be able to manage the complexity of these cases in a reliable way. Without a doubt, these skills have also enabled us to reassure our patients that they are being treated with the most up-to-date and predictable procedures and techniques.”

Patient-Centric

Lane went on to explain, “We are working now with a Kois-trained team of 15 practitioners in the UK to have done so.”

Vital to all this, Lane went on to explain, “We are working now with a Kois-trained team of 15 practitioners in the UK to have done so.”

The figures speak for themselves. Since 2011, Queensway Dental Clinic has experienced an increase in its implant turnover of 220 per cent with up to 50 per cent of all of its private activity originating from its provision of implants. There has also been a concurrent growth of 125 per cent in its laboratory business and this can be directly linked to its implant success.

Working with Nobel Biocare enables the Queensway team to use a variety of different techniques in its immediate loading, and provides the opportunity to scan and plan treatments in full 3D. It also allows the clinical staff of Queensway to liaise effectively with the laboratory staff, expediting and improving the process from start to finish.

This kind of professional knowledge, when combined with clinical, technical and management skills, has been one of the greatest contributing factors to the success of Queensway’s implant business. “It has been a challenge,” admitted Lane. “And it requires excellent communication from all aspects of our business, but it has certainly paid dividends—and it certainly would not have been possible without the relationship we share with Nobel Biocare.”

This relationship seems in no way likely to end soon, indeed, the team at Queensway Dental Clinic and laboratory has found working with Nobel Biocare so effective that it has seen an 87 per cent increase in spending on Nobel clinical products, as well as a 250 per cent increase for laboratory items since 2011. “Having a single company solution in our busy practice has been incredibly useful in boosting our business,” said Lane.

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However, having the knowledge and the products is just one part of achieving success. Putting everything into practice represents the greatest struggle for a large and busy centre like Queensway Dental Clinic. For this reason, the team strives to follow five essential tenets to ensure success.

Firstly, it is important to provide one point of contact. “As we have explained that having so many disciplines together under one roof has created a culture in which patients can feel confident. Rather than being passed around between different teams, patients at Queensway can conveniently be treated by one dedicated and well-trained team.

Furthermore, Queensway invests in progressive treatment during that time. However, as of 2011, the business model started to change and the partners turned their attentions to expanding the private side of the clinic. By applying the same principles learnt from building a successful NHS practice, Queensway Dental Clinic grew from a four-surgery practice into a 25-surgery practice over time.

LANE SUGGESTED THAT THIS SUCCESS CAN LARGELY BE ATTRIBUTED TO THE QUEENSWAY ETHOS WITH ITS PATIENT-CENTRED APPROACH TO DENTISTRY. "WE FOCUS ON HOLISTIC CARE, MEANING THERE IS REAL CHOICE FOR THE PATIENT, AS WELL AS ENSURING THAT SHARED DECISIONS ARE MADE, OVER WHICH PATIENTS HAVE FULL CONTROL."
To build a truly successful implant clinic, it is vital to have the right team in place.

In conclusion, by investing in exceptional training, by communicating effectively, by working with high-quality and supportive companies, and by maintaining high levels of service, Queensway Dental Clinic has achieved a great deal over the last 20-plus years. The dedication and hard work shown by its team are a testament to its past and continued success and serve as a shining example of what an implant business can achieve today and tomorrow.

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