Academy News

Academy of Osseointegration
Advancing the Vision of Implant Dentistry

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In This Issue

Special Feature

Clinical complications in fixed prosthodontics

By Charles J. Goodacre, DDS, MSD, Guillermo Bernal, DDS, MSD, Joseph Kan, DDS, MS, and Kitichai Rungcharassaeng, DDS, MS

A knowledge of the complications that can occur with single crowns, fixed partial dentures, all-ceramic crowns, resin bonded prostheses, posts and cores, and implant prostheses enhances the scientific foundation upon which diagnosis and treatment planning are based and facilitates the communication of realistic expectations to patients.

The following information was derived from a literature review of clinical studies that identified the incidence and types of clinical complications that can occur in fixed prosthodontics. Average incidences were calculated by combining all the raw data from each type of restoration/prosthesis. The mean values are meant to suggest trends rather than provide definitive statistical conclusions.

Single crowns

Eight studies provide data about all-metal (mostly complete coverage, with some partial coverage) crowns, metal ceramic, and resin veneered metal crowns (Chart 1). Of the 1,476 crowns evaluated in the 8 studies, 157 were affected by some type of complication (mean complications incidence of 11%). The most common complications were need for endodontic treatment (3%), porcelain fracture (3%), loss of retention (2%), periodontal complications (0.6%), and caries (0.4%).

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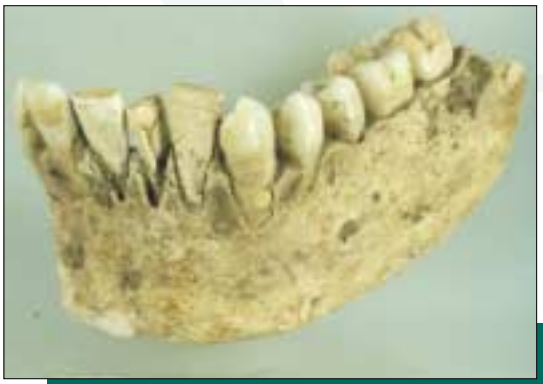

Photo N31901, Peabody Museum, Harvard University

Examine the world's first endosseous implant at AO Annual Meeting… story on page 7

Academy News

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President's Message

Reflections on one incredible year

By Dr. James H. Doundoulakis

Assuming the Presidency of any national organization is daunting. Early excitement and expectations soon lead to the enormity of the challenge that beckons! A myriad of decisions engulfs the new president, all starting the very first week of his term. There is NO "honeymoon!" Yet with all those day-to-day operational matters, much was accomplished during the past year to set the stage for the Academy's continued growth, with constant vigilance on its strategic plan. This is a glimpse of what has transpired. It was one incredible year!

Dr. Doundoulakis addresses the EAO in Brussels, Belgium

The first six weeks of my term brought on a flurry of activity that led to the addition of the American College of Prosthodontists (ACP) as co-sponsor of the Boston Annual Meeting. This final, yet important, addition to our meeting, ties in with the already strong presence the American Association of Oral and Maxillofacial Surgeons (AAOMS) and the American Academy of Periodontology (AAP) bring to this unique, collaborative meeting. After all, prosthetics drives most of our final cases, and this addition rounds out a most exciting meeting for every clinician, educator, and researcher who attends.

As a practicing prosthodontist myself, it was personally gratifying to have the ACP participate. Big thanks to Academy members Drs. **Bejan Iranpour,** Rochester, NY, **Paul Schnitman,** Wellesley Hills, MA, **David Felton,** Chapel Hill, NC, **Tom McGarry,** Oklahoma City, OK, and **Jonathan Ferencz,** New York, NY, for their effort in facilitating this important collaboration.

As I stated early in my term, membership needs received a high priority. Currently, several ongoing and exciting new initiatives continue to increase our already large membership base. As the Academy grows in size, its influence on the world dental implant community (and the patients we treat) amplifies. The entire Membership Committee, chaired by Dr. **Russell Nishimura,** Agoura Hills, CA, deserves our thanks for their strong efforts over the last year.

The strong commitment the AO has made to research continues to pay large dividends. The Council on Research is the Academy's largest and most active committee network. The Research Submissions Committee, chaired by Dr. **Alan Pollack,** New York, NY, has reviewed over 130 abstracts for Annual Meeting oral and poster presentations. This year, the Clinical Innovations sub-committee, chaired by Dr. **Edward Amet,** Overland Park, KS, will bring an exciting, fresh new look to the annual meeting in Boston.

> ***"Currently, several ongoing and exciting new initiatives continue to increase our already large membership base."***

Look for 'eye-popping' news soon

We have received several wonderful proposals for the research grant this year. In an effort to expand and be seen as the "go to" sponsor for first-rate scientific studies, we are currently developing a research award that will bestow one of the largest-funded grants offered by any dental implant organization on qualified independent investigators. Announcements of this "eye-popping" news will be coming soon in Academy News!

Finally, through the direction of Research Council leaders Drs. **Vince Iacono,** Stony Brook, NY, and **James Taylor,** Ottawa, ON, Canada, we have initiated early planning for the 2006 World Workshop: "Academy of Osseointegration Workshop on the State of the Science of Implant Dentistry." This workshop will feature top researchers and clinicians, providing systematic evidence-based literature reviews of very significant implant-related topics. AO members will receive more information as we further develop this program.

This past year, in an effort to strengthen relationships with our largest corporate sponsors, AO Executive Director Kevin Smith and I visited many implant companies, including Center Pulse, Nobel Biocare, Dentsply-Friadent-Ceramed, and 3I-Implant Innovations. We have also had high level meetings with Lifecore Biomedical, Straumann USA, and Bicon.

The Academy's stature and the attraction of the large collaborative meeting in Boston have prompted our corporate sponsors to offer extremely generous support. I cannot thank these sponsors adequately for their generous and continuous support of the Academy.

Many committees active behind the scenes

Behind the scenes, many committees have been very active. For example, the Pre-Doctoral Education Forum Committee, co-chaired by Drs. **Marvin Baer,** Fallston, MD, and **Russell Wicks,** Memphis, TN, has been laying the groundwork for the next Educational Forum, tentatively scheduled for 2004, prior to the AO annual meeting in San Francisco. We anticipate that every

dental school in the country will participate in this forum. Marvin and Russell and their committee members deserve thanks for a job well done.

Most of the attendees at AO's three regional meetings this past year in Los Angeles, Washington DC, and Indianapolis were non-members. Course evaluations received from all three meetings were very positive. Hats off to the local team leaders Drs. **Jay Beagle,** Indianapolis, **Joseph Kravitz,** Bethesda, MD, and of course, **Bob Garfield,** Los Angeles, for beautifully orchestrating all three of these meetings.

Rick Rounsavelle

AO Executive Committee

Marjorie Jeffcoat

Ed Sevetz

Clarence Lindquist

Dayn Boitet

The year's biggest focus has been the upcoming February 27-March 1 Annual Meeting in Boston. No one at Academy headquarters remembers a year when the phones were ringing "off the hook" for members wishing to register so early. Due to overwhelming demand, our headquarters staff started the registration process several weeks earlier than usual. As this piece is written, our secondary hotel—The Westin Copley Hotel—was already SOLD OUT!

Consider bringing allied staff to Boston

The fabulous main program includes keynote lectures, symposia, limited attendance clinics, and treatment planning sessions. In addition, our Allied Professional Staff Committee Chair **Bob Eskow,** Livingston, NJ, has designed a special program on implant patient education for all allied staff members. The curriculum includes essential information for understanding the clinical application of implant dentistry and the pivotal role of the allied staff. Please consider bringing your staff to Boston. They will benefit from the entire event and can participate in this special one-day course designed just for allied staff.

The Academy's impressive headquarters staff provides the glue that has kept the entire committee structure and our programs moving along. However, none of these programs would get off the ground if it weren't for the direction and support of a visionary board of directors. The Executive Committee, consisting of **Rick Rounsavelle,** Torrance, CA (Secretary and annual meeting chair for 2004), **Ed Sevetz,** Orange Park, FL (Treasurer), **Marjorie Jeffcoat,** Birmingham, AL (Vice President), and **Dayn Boitet,** Orange Park, FL (Past President) has been an invaluable resource and advisory council. In addition, the Academy will be in very capable hands when I pass the gavel to President-Elect **Lindy Lindquist,** Washington, DC, in Boston. With this team, the AO is assured of strong leadership for years to come.

Yes, it was a very productive year! With all that's been accomplished, I can't believe we still have the Annual Meeting to look forward to. As it is with all past presidents, my year at the helm is the culmination of many years of work on committees, attending meetings, participating in conference calls. The *future* presidents of this Academy have already started this process. It's this devotion to excellence and a commitment to the Academy that lifts those dedicated individuals to the forefront of this organization's leadership. I urge you all to strive for this. Then you, too, will surely say one day in the not-too-distant future, "It was one incredible year!"

Apply for Charitable Grants, contribute to Osseointegration Foundation

The Academy's Osseointegration Foundation makes available patient care grants to subsidize the care of individual patients, based on need, under its Charitable Grant Program. Members may apply for grants up to $4,000, depending on the severity of each case, to pay for incidental expenses. Corporate and manufacturing partners donate materials, and practitioners donate their professional skills and provide necessary private or office settings.

Members are invited to make a charitable contribution to the Academy's Osseointegration Foundation to support treatment for patients with special needs. Send contributions to Osseointegration Foundation, 85 West Algonquin Road, Suite 550, Arlington Heights, IL 60005.

Allied Staff program features unique panel, emphasis on effective communication

The Academy's first multi-disciplinary panel featuring representatives of every member of the implant team will highlight a special Allied Staff program Friday, February 28, during the Boston Annual Meeting.

"Ask the Experts" panelists will include a periodontist (Dr. **Leslie G. Batnick,** Wantagh, NY), prosthodontist (Dr. **Jeffrey A. Scolnick,** New York, NY), oral and maxillofacial surgeon (Dr. **Craig M. Misch,** Sarasota, FL), dental hygienist **(Anita H. Daniels,** RDH, Palm Beach Gardens, FL) and laboratory technician **(Leonard Marotta,** MDT, CDT, East Framingdale, NY).

"This provides a unique opportunity to have questions answered by a truly multi-disciplinary panel of experts. AO has never had a panel like this. Each panelist is an exceptional educator in the field of implant dentistry," says Dr. **Robert N. Eskow,** Livingston, NJ, chair of the Allied Health program.

"We created this Allied Health program to address the needs of all team members," Dr. Eskow said. "Our theme is effectiveness in communicating—within an office, between surgical and restorative practices, and most of all, with patients.

"Communication skills enable team members to educate and motivate prospective implant candidates with a sense of confidence and a feeling of ease." *— Dr. Robert Eskow*

"Optimal communication facilitates the implant process for all members of the team, and for the patient. Furthermore, communication skills enable team members to educate and motivate prospective implant candidates with a sense of confidence and a feeling of ease," he adds.

Speakers who will discuss various facets of communication include **Valerie Sternberg Smith,** RDH, BS, West Caldwell, NJ, "The 'How To's' for Recommending Implant Dentistry"; **Gene Werner,** Downers Grove, IL, "Communication Skills for the Implant Dentistry Team"; Dr. **Robert L. Blackwell,** Decatur, IL, "Interoffice Staff Communication"; and Dr. **Scott D. Ganz,** Fort Lee, NJ, "E-mail Communications with Patients—Guidelines and Precautions."

The course is open to all meeting registrants at no additional cost. Allied staff personnel can also register only for this one-day session. "We hope all AO members will take advantage of this opportunity to inform and invite their team members," Dr. Eskow says.

Committee Profile

Dr. Bejan Iranpour chairs his second AO Annual Meeting

The Academy's 18th Annual Meeting Chair, Dr. **Bejan Iranpour,** Rochester, NY, is chairing an AO annual meeting for the second time. He chaired the program for the 1994 Annual Meeting in Orlando, FL, and later (1999-2000) served as the Academy's President.

As Chair, Dr. Iranpour has been responsible for coordinating the efforts of the planning committee and many individuals involved in the development of the Annual Meeting. He has been committed to focus on the collaborative spirit of the meeting.

Dr. Iranpour, 68, recently retired from the full-time staff after 32 years on the faculty of the University of Rochester. He has also held appointments as Chief, Department of Dentistry, at The Genessee Hospital, and Professor, Eastman Dental Center.

Dr. Iranpour's professional activities have included teaching, the practice of oral

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Boston's many attractions include the USS Constitution/ Old Ironsides (top), Paul Revere's home, the John F. Kennedy Library and Museum and downtown (seen across the back bay).

Boston Annual Meeting provides rare opportunity to examine world's first known endosseous implant

AO's Boston Annual Meeting will provide a rare opportunity to examine an original artifact of the world's first known endosseous implant, frequently described in osseointegration literature since it was recovered in an archeological dig in 1931.

The large fragment of an almost entire lower jaw, missing only the left ascending ramus, has three missing incisors implanted with artificial teeth made of the shell of a bivalve mollusc. The specimen has been held by Harvard University's Peabody Museum of Archaeology and Ethnology since 1933. A curator from the Museum's department of osteology will be available to discuss the legendary fragment in a special exhibit in the AO exhibit hall.

"The imitation of natural teeth is truly extraordinary in spite of their being flattened antero-posteriorly. Their overall form is triangular, with the apex of the triangle serving as the root of the implant," wrote Brazilian Prof. **Amadeo Bobbio** in a landmark article about the implants published in the journal *Bulletin of the History of Dentistry* in June 1972.

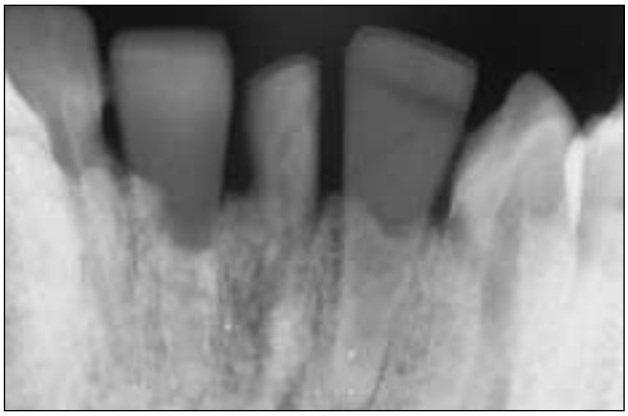

Photo S10458b, Peabody Museum, Harvard University

Bobbio radiograph shows osteogenesis.

The specimen is of Mayan origin and was recovered in an archeological dig at the *Playa de los Muertos* in the Ulloa Valley of Honduras. It is believed to date from the 7th century.

The shell substitutes were once thought to have been implanted *post mortem*, but Prof. Bobbio took radiographs of the implants which show a compact osteogenesis surrounding the implants indicating that the substitutes were implanted during life. He estimated that the fragment was from a woman about 20 years old and declared the shell implants to be "the earliest authentic endosseous alloplastic implants which have yet been discovered."

"People in our field have been reading about this specimen for many years. This is a once in a lifetime opportunity to examine it, photograph it, see the Bobbio radiographs, and discuss it with an archeological expert from the Peabody Museum," said the Academy's Dr. **Paul A. Schnitman,** Wellesley Hills, MA, who made arrangements for the exhibit.

Dr. Bejan Iranpour chairs his second AO Annual Meeting

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and maxillofacial surgery, and research. His research interests include wound healing, local anesthetics, pain and anxiety control, implants, and residency education. He has published 26 articles and two book chapters.

Bejan Iranpour

Born in Iran, Dr. Iranpour graduated with a DDS degree from the University of Tehran, then later received a second DDS degree from the State University of New York at Buffalo. He also has an MS degree in dental sciences from the University of Rochester. He completed a fellowship in general dentistry at the Eastman Dental Center and an internship and residency in oral and maxillofacial surgery at The Genessee Hospital.

He is Past President and a Fellow of the AO and a Fellow of the American College of Dentists and the International College of Dentists, and a member of several other professional organizations. He has served as President of the New York State Society of Oral & Maxillofacial Surgeons and President of the Medical Staff of The Genessee Hospital.

Dr. Iranpour's many honors include the Committee Man of the Year Award of the American Association of Oral & Maxillofacial Surgeons, the Award for Excellence in Clinical Education of the Eastman Department of Dentistry, University of Rochester, and the William J. Gies Award for Education and Research in Oral and Maxillofacial Surgery.

Dr. Iranpour and his wife Sharon have been married for 39 years and have two children, Nasrin and Darius.

View Annual Meeting Preliminary Program at www.osseo.org

Visit the AO Website at www.osseo.org to catch up on past editions of Academy News and get a glimpse of the upcoming scientific program for the Annual Meeting, February 27-March 1, 2003 in Boston.

Members can also:

- Download Annual Meeting registration and housing forms;
- Order patient education brochures;
- Apply for Osseointegration Foundation research grants.

Clinical complications in fixed prosthodontics

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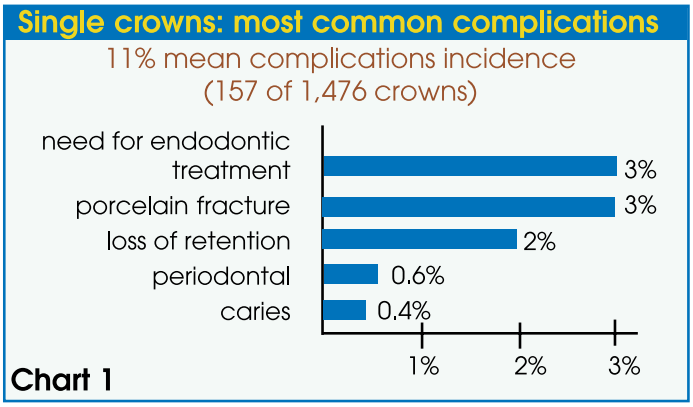
Fixed partial dentures

Nineteen clinical studies provide data about fixed partial dentures (Chart 2), including all-metal, metal ceramic, and resin



veneered metal prostheses. Of the 3,272 prostheses evaluated, 866 were associated with some type of complication (mean complications incidence of 27%). The most common complications were caries (18% of abutments were affected and 8% of prostheses), need for endodontic treatment (11% of abutments were affected and 7% of prostheses), loss of retention (7%), esthetics (6%), periodontal complications (4%), tooth fracture (3%), and prosthesis/porcelain fracture (2%).

All-ceramic crowns

In 22 clinical studies, 4,277 all-ceramic crowns were evaluated (Chart 3) and 357 complications encountered (mean complications incidence of 8%). The most common complications were crown fracture (7%), loss of retention (2%), need for endodontic treatment (1%), and caries (0.8%). No significant periodontal complications were observed. The relationship between crown fracture and arch location was evaluated in 10 studies. The mean anterior crown fracture incidence was 3%, the premolar fracture incidence was 7%, and the molar fracture rate was 21%.

Resin bonded prostheses

Forty-eight studies provide data about resin bonded prostheses (Chart 4). Of the 7,027 prostheses evaluated, 1,823 complications were encountered (mean complications incidence of 26%). The most common complications were debonding of the prosthesis (21%), tooth discoloration (18%), caries (7%), and porcelain fracture (3%). No significant periodontal changes were noted.

The effect of arch (maxilla versus mandible), arch location (anterior versus posterior), gender, age, span length, heavy occlusal forces, and preparation of the abutments was evaluated in relation to debonding. No conclusive relationship was established for arch, arch location, and gender. A possible relationship was found between age and debonding: 4 of 6 studies reported higher debonding in young patients, and 2 of 6 studies found no significant differences.

Six studies that evaluated span length found higher debond rates with longer span prostheses (over 3 units in length, those that had more than 2 retainers, and those with more than one pontic). The use of a retentive tooth preparation versus minimal or no tooth preparation was evaluated in 8 studies. Five of the eight studies reported decreased debonding (mean of 11%) when the teeth were retentively prepared compared to minimal or no tooth preparation (mean debond rate of 47%).

Posts and cores

Twelve clinical studies provide data about 2,784 posts and cores (Chart 5). There were 279 total complications reported (mean complications incidence of 10%). The most common complications were post loosening (5%), root fracture (3%), caries (2%), adverse periodontal changes (2%), bent/fractured posts (1%), and root perforation (1%).

IMPLANT PROSTHESIS

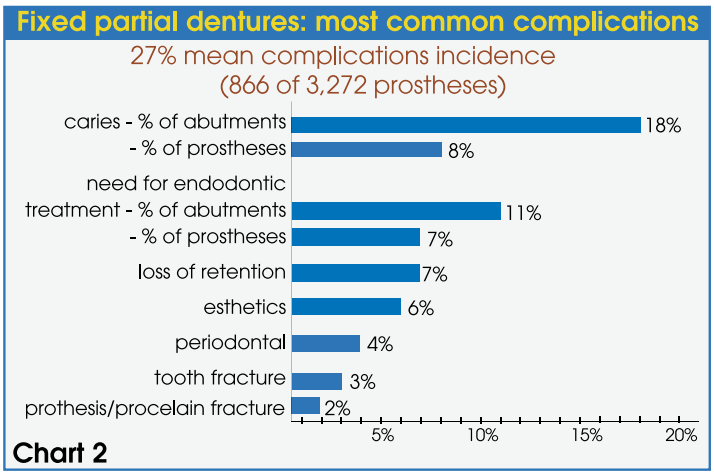
Because of the extensive nature of the implant data base, the complications have been divided into 6 major categories (surgical, implant loss, bone loss, peri-implant soft tissue, mechanical, and phonetic/esthetic).

Surgical Complications

Data are available for 3 surgical complications: hemorrhage-related complications such as hematomas and ecchymosis (mean of 24%), neurosensory disturbance (mean of 6%), and mandibular fracture (mean of 0.3%). Other complications have been identified, but no incidence percentages are available. These other complications include adjacent tooth devitalization, life-threatening hemorrhage, air emboli, implant displacement into the mandibular canal, screwdriver aspiration, descending necrotizing mediastinitis, intraocular hemorrhage, and singultus.

Implant Loss

Implant loss has been extensively studied in relationship to type of prosthesis and arch, timing of the loss, effect of implant length, effect of bone quality, and relationship to systemic conditions.



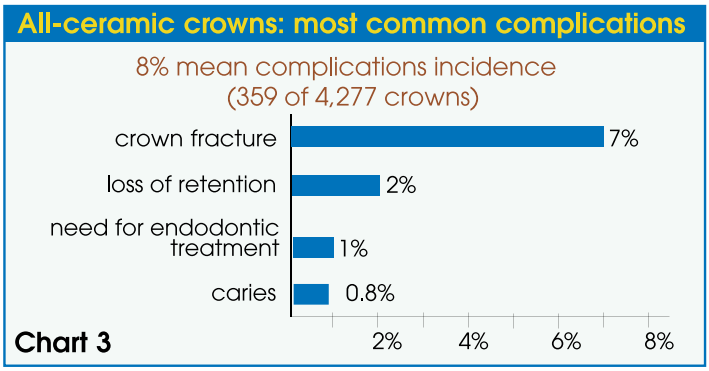
Type of prosthesis/arch

With implant single crowns, a 3% implant loss has been identified from the combined data of 19 studies. There was insufficient data available from multiple studies to identify the loss rate by arch.

With implant fixed partial dentures, the average implant loss was found to be 6% in the maxilla (14 studies) and 6% in the mandible (13 studies).

The average implant loss associated with implant overdentures was determined to be 21% in the maxilla (6 studies) and 5% in the mandible (20 studies).

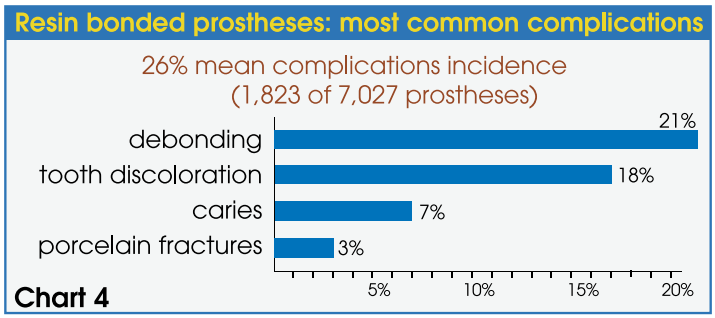
With implant fixed complete dentures (fixed-detachable prostheses, hybrid prostheses), the average maxillary implant loss



was found to be 10% (9 studies), and the average mandibular implant loss was 3% (13 studies).

Timing of the loss

With implant single crowns (6 studies), 47% of the implant loss occurred preprosthetically and 53% occurred postprosthetically. When implant fixed partial dentures (8 studies) were evaluated, 61% of the loss occurred preprosthetically and 39% postprosthetically. The implant losses associated with implant overdentures (13 studies) were more common preprosthetically (60%) than postprosthetically (40%). With fixed complete dentures (8 studies), 54% of the implants were lost preprosthetically and 46% postprosthetically.



Based on 5 studies, it was determined that 57% of the post-prosthetic implant loss occurred during the first year after prosthesis placement, 34% during the second year and 9% during the third year.

Implant length

The data from 13 studies identified a 10% implant loss with implants 10 millimeters or less in length whereas those longer than 10 millimeters in length had a 3% loss.

Bone quality

The combined data from 7 studies identified a higher implant loss in Type IV bone (16%) compared to Types I-III bone (4%).

Systemic conditions

Smokers (9 studies) had a higher implant loss (11%) than non-smokers (5%). Radiation therapy (11 studies/reports) resulted in a 25% implant loss in the maxilla and a 6% loss in the mandible. A mean implant loss of 9% was identified in conjunction with controlled diabetes (5 papers).

Reports of implants placed in the presence of other systemic conditions (ASA Class II and III patients, chemotherapy, hormone replacement therapy, scleroderma, osteoporosis, Sjogren's syndrome, Parkinson's disease, multiple myeloma, HIV-positive status) have been published but there is a lack of definitive conclusions either because the publications did not provide incidence data or the data was not available from multiple publications. However, negative effects have not been reported in conjunction with osteoporosis, scleroderma, chemotherapy, hormone replacement therapy, and ASA Class II or III patients.

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About the authors

Dr. Charles J. Goodacre, *Dean of the Loma Linda University School of Dentistry, Loma Linda, CA, is a Diplomate and a past president of the American Board of Prosthodontics and a Fellow of the American College of Prosthodontists. He was formerly Chairman of the Department of Prosthodontics at the Indiana University School of Dentistry.*

Dr. Guillermo Bernal, *Professor and director of the Advanced Education Program in Prosthodontics at Loma Linda University, Loma Linda, CA, is a Diplomate and Fellow of the American College of Prosthodontics. He studied at the Colombian School of Dentistry, Bogota, Colombia, and the Indiana University School of Dentistry. He was previously Associate Professor in the Department of Restorative Dentistry and Director of Advanced Prosthodontics at Javeriana University, Bogota.*

Dr. Joseph Kan, *Associate Professor in the Department of Restorative Dentistry and coordinator for the Pre-Doctoral Implant Program at the Loma Linda University School of Dentistry, Loma Linda, CA, serves on the editorial board of Practical Procedures & Aesthetic Dentistry.*

Dr. Kitichai Rungcharassaeng, *Assistant Professor in the Department of Restorative Dentistry at the Loma Linda University School of Dentistry, completed his specialty training in prosthodontics at Boston University School of Dentistry. He received a master's degree in implant dentistry at Loma Linda University and has been extensively involved in research, publications and clinical practice.*

Clinical complications in fixed prosthodontics

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Bone Loss

In 15 studies, the mean marginal bone loss that occurred during the first year was 0.93 millimeter and the mean loss per year after the first year was 0.1 millimeter. Three studies indicated 1.5% of patients exhibited bone loss in excess of 2 millimeters over a 3-year period, 34% of patients experienced no bone loss, and 19% of patients exhibited bone gain.

Peri-Implant Soft Tissue Complications

Incidence data are available regarding 3 types of soft tissue complications (fenestration/dehiscence, gingival inflammation / proliferation, and fistulas).

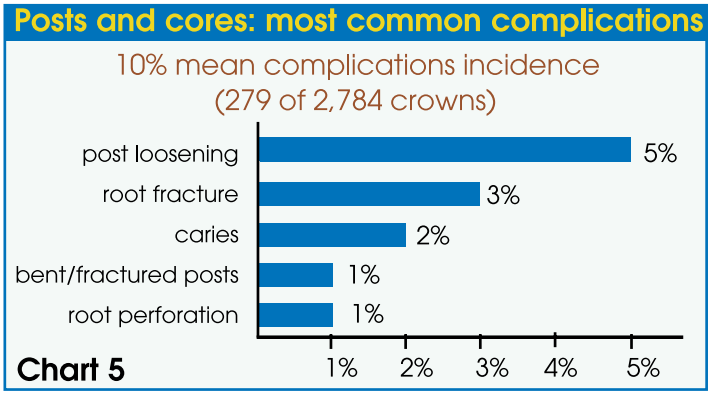
In 6 studies, fenestration/dehiscence of the implant occurred prior to second stage surgery in 7% of the implants placed. Gingival inflammation/proliferation was found around 6% of the implants placed with the greatest incidence present around implants that supported/retained overdentures. When the data from 10 studies were combined, fistulas were found to occur with an average incidence of 1%.

Mechanical Complications

Quite a number of mechanical complications (Table 6) have been reported in the literature with an average incidence that ranged between 1% and 33%.

Esthetic/Phonetic Complications

The combined data from 5 studies indicates esthetic complications were associated with 10% of the implant prostheses.



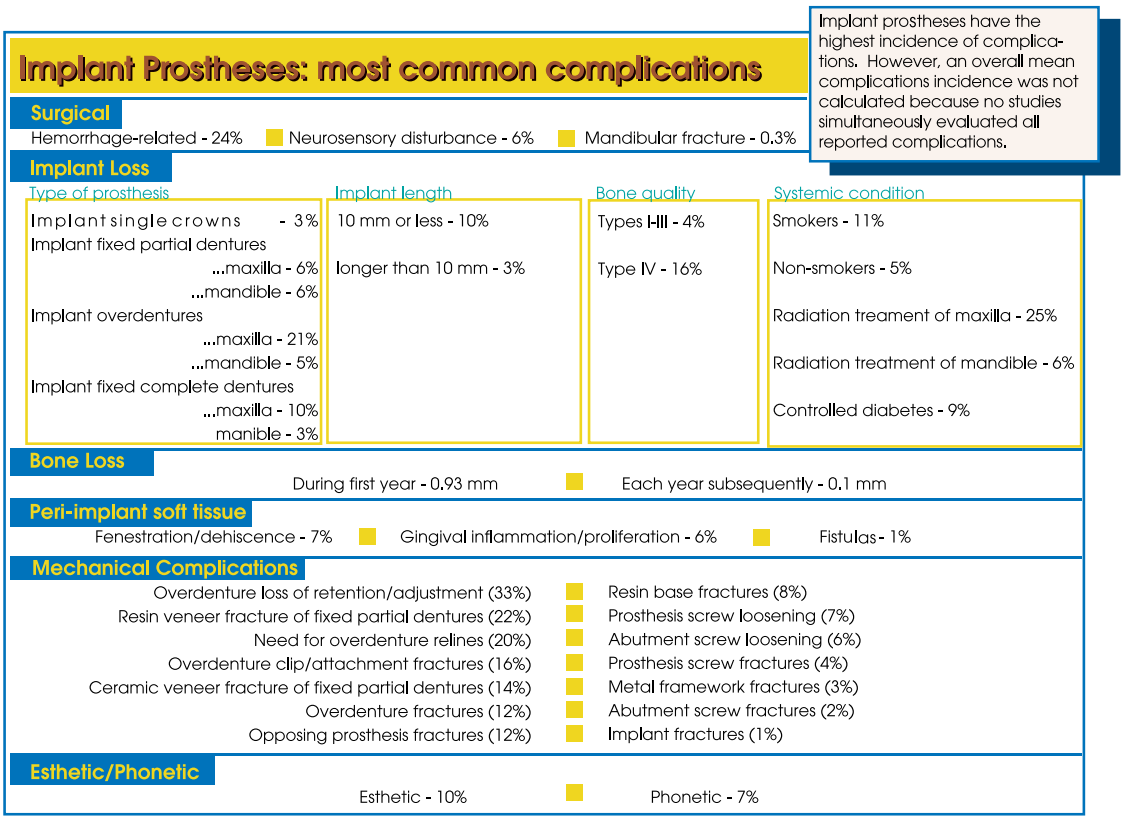
Phonetic challenges were encountered with 7% of the prostheses (3 studies).

Comparison of the Complications Incidences

When all types of restorations/prostheses are compared, implant prostheses exhibited the highest incidence of complications. However, the incidence varies substantially with the type of implant prosthesis. The lowest incidence of complications occurred with implant single crowns, and implant overdentures had the highest incidence of complications.

It is interesting to note that all-ceramic crowns had the lowest overall complications incidence (8%). Single crowns and posts and cores had comparable complications incidences of 11% and 10%, respectively. Likewise, fixed partial dentures and resin bonded prostheses have comparable incidences of 27% and 26%, respectively.

The length of this report precludes complete amplification of such an extensive topic and does not permit publication of the reference list (over 300 articles) upon which the information was based. The complete reference list can be obtained via e-mail: **cgoodacre@sd.llu.edu**.



Foundation Review Board approves unprecedented 6 charitable grants

By Dr. David Guichet

Dr. David Guichet

A Foundation Review Board comprised of four past presidents of the Academy recently reviewed and approved an unprecedented six individual patient treatment grant applications for the calendar year 2002. The review committee was comprised of Drs. **Charles Berman,** New York, NY (AO President 1992), **Stephen Parel,** Dallas, TX (President 1995), **Michael Block,** New Orleans, LA (President 1996), and **Abraham Ingber,** Bethesda, MD (President 2000).

A new review structure has allowed for timely grant approvals. Applications are now reviewed quarterly and awards made based upon the extent of the treatment undertaken and the resources available for funding. Currently, grant awards range from $1,000 to $4,000.

2002 Charitable Grants will be made to Drs. **Joseph A. Toljanic,** Chicago, for treatment of a 42-year-old woman suffering from cleidocranial dysplasia and irritable bowel syndrome; **James A. Chandler,** Lexington, KY, for a 66-year-old man suffering from a degenerative cerebellar disorder; **Vincent J. Prestipino,** Bethesda, MD, for a 27-year-old male with complex dental treatment needs; **Vicki C. Petropoulous,** Philadelphia, for a 42-year-old woman with cleidocranial dysplasia with many missing teeth; **James H. Doundoulakis,** New York, for a 62- year-old man with full edentulous maxillary arch and partially edentulous mandibular arch and many missing teeth; **Carlos Aparicio,** Barcelona, Spain, to treat the second patient in the same family for amelogenesis imperfecta.

Through the charitable grant program, the Foundation seeks to make a very big impact in the lives of the individuals served. The Foundation's stated mission is to spread the message about the success of osseointegration in ways that the Academy cannot. Doctors participate in the program by downloading grant applications from the Academy Website at **www.osseo.org** and following the link to the Foundation page. Following treatment, several patients have been interviewed and their stories published in *Academy News* and/or included in Foundation presentations.

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Student profile

Dr. Barewal's research focuses on implant stability

Dr. Reva Barewal

Implant stability during the early healing process quickly became the research focus for AO student member Dr. **Reva M. Barewal,** Portland, OR. Her study evaluating implant stability during early healing periods using the Osstell® device won first place in the prestigious John J. Sharry national research competition of the American College of Prosthodontics (ACP).

The Osstell® transducer attached to the implant vibrates. Implant stability can then be measured and tracked by resonance frequency analysis.

Following completion of her prosthodontics residency last year at the University of Texas Health Science Center in San Antonio, Dr. Barewal became an assistant professor in the Department of Prosthodontics at the Oregon Health and Science University. She is now course director of fixed prosthodontics at OHSU.

Dr. Barewal's research on implant mobility impressed Dr. **David L. Cochran,** Department Chair of Periodontics at the University of Texas Health Science Center and her research supervisor. "One thing that struck me was her determination to get her work done. She is a very goal-oriented person who focuses on her outcomes and then works hard to achieve them," Dr. Cochran says.

He was also impressed with Dr. Barewal's ability to organize outstanding presentations. She has presented at the ITI World Symposium (2002), the ACP national meeting, the Texas ACP section meeting (2002), and local study clubs.

Dr. **Robert J. Cronin,** her graduate program director, encouraged her participation in AO, where she presented a table clinic demonstrating interesting prosthodontic techniques at the 2001 Annual Meeting in Toronto.

During her San Antonio residency, Dr. Barewal completed a master's degree in the Graduate School of Biomedical Sciences. Her thesis involved a clinical study to evaluate the stability of ITI implants with an SLA surface during the early healing period. Interestingly, it was at the AO meeting that she first met with the entire team involved in the research study and decided on a preliminary protocol.

"This study has sparked a lot of interest as it showed much about implant stability that we didn't know. It contributed to a better understanding of the relationship between bone type, stability patterns, and loading protocols. The information gathered from this research was far reaching and could impact current healing protocols," she said.

Dr. Barewal graduated from the University of Toronto Dental School in 1992. Her dental class was one of the first in North America to have a predoctoral implant program under the directorship of Dr. **George A. Zarb,** Toronto, ON, Canada.

After receiving her DDS degree, she completed a general practice residency at Toronto's Mount Sinai Hospital. She then practiced as a general dentist for six years, taught at the University of British Columbia and participated in several study groups in Vancouver before enrolling in the San Antonio prosthodontic residency in 1999.

> ***"One thing that struck me was her determination to get her work done. She is a very goal-oriented person who focuses on her outcomes and then works hard to achieve them."***
>
> *— Dr. David L. Cochran*

"Reva is extremely conscientious, very devoted to her patients, and sincerely interested in research and a career in dental education. She has a true respect for the process of evidence-based dental education," Dr. Cronin said.

Dr. Barewal's clinical implant research continues at OHSU, where she is dedicated to increasing knowledge of healing around implants.

Foundation activities expand in response to member interest

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Last year's (2001/2002) charitable grants were made to AO teams from many areas. Teams included Drs. **Patrick Henry,** West Perth, Australia; **Glenn J. Wolfinger,** Fort Washington, PA; **Carlos Aparicio,** Barcelona, Spain; and **R. Gilbert Triplett,** Dallas, TX. Patients treated under the grant program receive treatment without charge. The major implant companies have all agreed to participate in the treatment by supplying the necessary components consumed in the treatment of the patients without charge.

During a period of time when economic conditions make it difficult for patients to afford needed treatment, many patients' lives are changed through this worthy Foundation charitable grant program. Again, thank you for your generous support of the unique activities of the Osseointegration Foundation. Remember, your contribution makes a big difference. Our goal to increase participation in the support of the Foundation depends on your support. Please download the fax back donation form on the Academy Website and follow the Foundation link at **www.osseo.org**.

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