Oral Surgery Care

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Fall Greetings!

As we settle into our fall schedules, sit back and take some time to review our quarterly newsletter with some timely topics.

We are all aging ourselves, and many of us have aging parents to care for. Dementia, including Alzheimer's disease, is always at least an underlying concern as we grow older. Our first review looks at advances in diagnosing Alzheimer's disease that have exciting possibilities for its early treatment. There is no cure, but the available treatments are more likely to slow its progression when started early. An accurate blood test for Alzheimer's disease could improve quality of life and extend the life span of those afflicted.

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We greatly appreciate being a part of your patient care team. Please contact me whenever I can be of any help to you or your patients.

Best Regards,

Dr. Brent Florine

Blood Biomarkers to Detect Alzheimer Disease in Primary Care and Secondary Care

Sebastian Palmqvist, Pontus Tideman, et al.
JAMA 2024 Jul 28

An accurate blood test for Alzheimer disease (AD) could streamline the diagnostic workup and treatment of AD. In this study, the authors wanted to prospectively evaluate a clinically available AD blood test in primary care and secondary care using predefined biomarker cutoff values. There were 1213 patients undergoing clinical evaluation due to cognitive symptoms who were examined between February 2020 and January 2024 in Sweden. The biomarker cutoff values had been established in an independent cohort and were applied to a primary care cohort (n = 307) and a secondary care cohort (n = 300); 1 plasma sample per patient was analyzed as part of a single batch for each cohort. The blood test was then evaluated prospectively in the primary care cohort (n = 208) and in the secondary care cohort (n = 398); 1 plasma sample per patient was sent for analysis within 2 weeks of collection.

Blood tests were based on plasma analyses by mass spectrometry to determine the ratio of plasma phosphorylated tau 217 (p-tau217) to non-p-tau217 (expressed as percentage of p-tau217) alone and when combined with the amyloid-β 42 and amyloid-β 40 (Aβ42:Aβ40) plasma ratio (the amyloid probability score 2 [APS2]). The primary outcome was AD pathology (determined by abnormal cerebrospinal fluid Aβ42:Aβ40 ratio and p-tau217). The secondary outcome was clinical AD. The positive predictive value (PPV), negative predictive value (NPV), diagnostic accuracy, and area under the curve (AUC) values were calculated.

The mean age was 74.2 years, 48% were women, 23% had subjective cognitive decline, 44% had mild cognitive impairment, and 33% had dementia. In both the primary care and secondary care assessments, 50% of patients had AD pathology. When the plasma samples were analyzed in a single batch in the primary care cohort, the AUC was 0.97 when the APS2 was used, the PPV was 91%, and the NPV was 92%; in the secondary care cohort, the AUC was 0.96 when the APS2 was used, the PPV was 88%, and the NPV was 87%. When the plasma samples were analyzed prospectively (biweekly) in the primary care cohort, the AUC was 0.96 when the APS2 was used, the PPV was 88%, and the NPV was 90%; in the secondary care cohort, the AUC was 0.97 when the APS2 was used, the PPV was 91%, and the NPV was 91%. The diagnostic accuracy was high in the 4 cohorts (range, 88%-92%). Primary care physicians had a diagnostic accuracy of 61% for identifying clinical AD after clinical examination, cognitive testing, and a computed tomographic scan vs 91% using the APS2. Dementia specialists had a diagnostic accuracy of 73% vs 91% using the APS2. In the overall population, the diagnostic accuracy using the APS2 (90% was not different from the diagnostic accuracy using the percentage of p-tau217 alone, 90%). *The APS2 and percentage of p-tau217 alone had high diagnostic accuracy for identifying AD among individuals with cognitive symptoms in primary and secondary care using predefined cutoff values. Future studies should evaluate how the use of blood tests for these biomarkers influences clinical care.*

Dr. Brent Florine received his undergrad degree from the University of Minnesota College of Liberal Arts and attended the University of Minnesota School of Dentistry. He received postgraduate dental and oral and maxillofacial surgery training at Louisiana State University and Charity Hospital in New Orleans, and the University of Minnesota Hospitals and Clinics. He is certified as a Diplomate of the American Board of Oral and Maxillofacial Surgery and has practiced oral surgery in Eagan since 1987.

Optimized Bone Grafting

Richard Miron
Periodontol 2000 2024 Feb;94(1):143-160

Bone grafting is routinely performed in periodontology and oral surgery to fill bone voids. While autogenous bone is considered the gold standard because of its regenerative properties, allografts and xenografts have more commonly been utilized owing to their availability as well as their differential regenerative/biomechanical properties. In particular, xenografts are sintered at high temperatures, which allows for their slower degradation and resorption rates and/or non-resorbable features. As a result, clinicians have combined xenografts with other classes of bone grafts (most notably allografts and autografts in various ratios) for procedures requiring better long-term stability, such as contour grafting, sinus elevation procedures, and vertical bone augmentations.

This review addresses the regenerative properties of each class of bone grafts and then highlights the importance of understanding each of their biomechanical and regenerative properties for clinical applications, including extraction site management, contour augmentation, sinus grafting, and horizontal and vertical augmentation procedures. Thereafter, an introduction toward the novel production of nonresorbable bone allografts (NRBAs) via high-temperature sintering is presented. These NRBAs not only pose the advantage of being more biocompatible than xenografts owing to their origin (human vs. animal bone) but also display nonresorbable properties similar to those of xenografts. Thus, while packaging allografts with xenografts in premixtures specific to various clinical indications has never been permitted owing to cross-species contamination and FDA/CE requirements, the discovery and production of NRBAs allows premixing with standard allografts in various ratios without regulatory restrictions.

Premixtures of allografts with NRBAs can be produced in various ratios for specific indications (e.g., a 1:1 ratio similar to an allograft/xenograft mixture for sinus grafting) without the need for purchasing separate classes of bone grafts. This optimized form of bone grafting could theoretically provide clinicians more precise ratios without the need to purchase separate bone grafts. *This review highlights the future potential for simplified and optimized bone grafting in periodontology and implant dentistry.*

The Global Reach of Social Media in Oral and Maxillofacial Surgery

Jack Harris, Nicole Beck, et al.
Oral Maxillofac Surg 2023 Sep;27(3):513-517

Social media use among oral and maxillofacial surgeons (OMSs) has grown in recent years, serving as an important resource for the dissemination of medical/surgical knowledge, research, education, diplomacy, and advocacy. However, no studies have attempted to characterize the global reach of social media in OMS. This study examined the profile activity, content performance, and demographic characteristics of followers from a single OMS-related Instagram account. Variables assessed include the total number of followers since the account's inception, profile views over the selected time period, and unique media content posts, as well as likes, comments, saves, impressions, and reach for all media content posts. The top 45 countries, cities, and languages based on each follower's geolocation and user settings were also included.

There were 9569 followers of which 6208 (64.9%) were listed as public accounts. Of the 6208 followers with public accounts, 2496 (40.2%) were female. The countries with the most followers included the United States (31.7%), India (12.5%), Malaysia (5.3%), Mexico (4.0%), and Pakistan (3.6%). The cities with the most followers included New York, New York (8.9%), Boston, Massachusetts (5.2%), Cairo, Egypt (4.3%), Santiago, Chile (3.7%), and Karachi, Pakistan (3.5%). OMS-related social media is uniquely positioned to facilitate global collaboration and augment the dissemination of surgical knowledge and expertise. This information is critical in understanding the distribution and demographics of the OMS workforce, trainees, and affiliates around the world.

Five-year Outcomes of a Randomized Controlled Clinical Trial Comparing Single-tooth Implant-supported Restoration with Either Zirconia or Titanium Abutments

Luca Ferrantino, Ana de Albornoz, et al.
Oral Maxillofac Surg Clin North Am. 2022 Aug;32(3):355-365

The purpose of this study was to evaluate the influence of the abutment material (zirconia vs. titanium) on the long-term aesthetic and clinical outcomes of implant-supported restorations. In 30 patients, a single implant-supported restoration with either a zirconia or a titanium abutment was placed in the anterior maxilla (incisors, canines, and bicuspids). Aesthetic (Implant Crown Aesthetic Index or ICAI), clinical, radiographic, and patient-centred outcomes were recorded at baseline (1 month after final restoration), 1 year, and 5 years of follow-up.

Twenty-five subjects completed the follow-up visits at 1 and 5 years. ICAI values showed statistically significant better aesthetic outcomes when zirconia abutments were used compared to titanium abutments. Between 1 and 5 years, the aesthetic sub-analysis of the crown component worsened but the mucosal sub-analysis improved. There were no significant changes in bone levels, but the plaque index, bleeding on probing, and probing depths worsened in both groups. *The authors conclude that at 5 years, standard zirconia abutments achieved better aesthetic outcomes, although with similar clinical behavior.*

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