Abstract

President Lecture

Special Lecture

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Project Report

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IFDAS Congress President Lecture

Dental Anesthesiology：Devotion to Patient's Welfare

IFDAS President Elect, Department of Dental Anesthesiology, Tokyo Dental College, Japan
Tatsuya ICHINOHE

The older population is growing in many advanced countries. In Japan, more than 25% of citizens are over 65 years. Geriatric people have many medical disorders and dental treatments sometimes worsen their systemic condition. To ensure safety and comfort during dental procedures especially in medically compromised and disabled patients, and also patients suffering from various kinds of pain, it is quite important that dentists should continue to develop knowledge and skills on systemic management and pain relief of dental patients. IFDAS consists of 18 member societies from all over the world. Current IFDAS develops to a big scientific organization where probably more than 10,000 people are working in dental anesthesiology field. The purposes and objectives of the IFDAS are；(1) To promote and encourage the study and extend the practice of improved methods of administration of anesthesia, analgesia, and sedation in dentistry and to bring the benefits of these methods to the people of the world, (2)To promote the international exchange of knowledge, technology and research achievements in dental anesthesia, analgesia and sedation, (3) To publish results of research and educational material for the benefit of member organizations and individuals and for the general public. We deeply hope healthy and happy life to all dental patients in the world through safe and comfortable dentistry and relief from pain and anxiety. I believe that IFDAS2018 will be a great opportunity for all participants to discuss about the role of dental anesthesiology for devotion to patient's welfare.

IFDAS Special Lecture

東大寺の大仏と正倉院宝物

The Great Buddha in Todaiji and Shosoin Treasures

帝塚山大学文学部
Tezukayama University, Japan
西山　　厚
Atsushi NISHIYAMA

奈良で一番有名なものは，なんといっても東大寺の大仏でしょう．奈良時代，8 世紀に大仏が造られてから，今年で 1,266 年が経っています．大仏を造ったのは聖武天皇です．大仏については，小学校 6 年生の社会科の授業で必ず習いますから，日本中の子どもたちは大仏のことをよく知っています．

しかし，なぜ聖武天皇はあのように大きな仏像を造ったのか，そもそも大仏とはいったい何者なのか，これまで大仏はどのように過ごしてきたのか．そういうことについて即答できる人は，おとなの人も含めて，思いのほか少ないのが現状です．

大仏は，盧舎那仏という仏です．盧舎那仏は「光の仏」という意味で，太陽のような存在です．太陽は，すべての生き物に，明るさと温もりをくれます．盧舎那仏もそういう存在です．聖武天皇が「すべての動物，すべての植物が，ともに栄える世の中をつくりたい」と言った意味も考えてみる必要がありそうです．

やがて聖武天皇が亡くなると，光明皇后は聖武天皇が大切にしていた品々を大仏に献納しました．これが正倉院宝物になります．なぜ，光明皇后はそれらの品々を自分の手元に留めておかなかったのでしょうか．なぜ，ほかの仏にではなく，大仏に献納したのでしょうか．

世界でもっとも人気のある展覧会と言ってよい正倉院展は，戦後まもない 1946 年に始められました．なぜ，正倉院展は始められたのでしょうか．なぜ，毎年開催されるのでしょうか．正倉院宝物の誕生をめぐる古代の物語と，正倉院展の誕生をめぐる現代の物語，この 2 つの物語をたどっていきます．

IFDAS Invited Lecture

Neuropathic Pain in Orofacial Region

Department of Oral Diagnostic Sciences, Nihon University School of Dentistry, Japan
Yoshiki IMAMURA

Neuropathic pain conditions in orofacial region consist of two distinct classifications, clinically established cranial nerve neuralgias and neuropathic pains of cranial nerves. The International Association for the Study of Pain Special Interest Group of Orofacial Pain (IASP SIG-OFP) and the International Headache Society (IHS) have defined the characteristic features of clinically established cranial nerve neuralgias as paroxysmal pain, and neuropathic pains of cranial nerves as continuous pain for their fundamental symptoms. Trigeminal neuralgia has been classified into three subclassifications, classical, secondary and idiopathic trigeminal neuralgias according to their etiologies, which tells us that making the differential diagnosis leads to the following treatment strategy. Imaging studies have achieved a remarkable advancement in diagnosis of clinically established trigeminal neuralgia, and doctors and patients have found a rationale in their decision making. However, there are still some difficult cases in diagnosing idiopathic trigeminal neuralgia. Trigeminal neuropathic pain conditions include trigeminal neuropathic pain attributed to herpes zoster, trigeminal postherpetic neuralgia, posttraumatic trigeminal neuropathic pain, trigeminal neuropathic pain attributed to another disease and idiopathic trigeminal neuropathic pain. Recent discussions include whether some idiopathic orofacial pain conditions (e. g., burning mouth syndrome and persistent idiopathic dento-alveolar pain) can be classified into trigeminal neuropathic pain. There are various studies that have reported evidence of nerve damage in these conditions. IASP SIG-OFP and IHS, however, have not classified these idiopathic pain conditions into trigeminal neuropathic pain. My talk will include current consensus on diagnosis and management strategy of trigeminal neuropathic pain conditions.

IFDAS Invited Lecture

Outpatient Office Anesthesia/Sedation

IFDAS Editor, University of California at Los Angeles, USA
Steven GANZBERG

All levels of sedation as well as general anesthesia are administered by dentists in the United States. Nitrous oxide continues to be the most common sedative employed. Oral minimal sedation for adults with a small dose of benzodiazepine continues to be used. In the last 15 years, oral moderate sedation with repeat doses of benzodiazepine has also become popular but concerns with unpredictability of effects and oversedation continue. Intravenous moderate sedation use is increasing. Deep sedation and general anesthesia continue to be employed by dentist anesthesiologists and oral & maxillofacial surgeons. Dentist anesthesiologists, according to their Parameters of Care, are not to be involved in the performance of the dental procedure during deep sedation/general anesthesia. They provide all levels of sedation and intubated or non-intubated general anesthesia for patients age 18 months of age to the very elderly in the office setting. Oral & maxillofacial surgeons generally administer intravenous moderate or deep sedation/non-intubated general anesthesia while providing the surgical procedure at the same time with a dental assistant monitoring the patient's vital signs. Various techniques will be reviewed in the lecture.

IFDAS Invited Lecture

The Role of Dental Anesthesiologists in an Aged Society

Department of Dental Anesthesiology, Osaka University Graduate School of Dentistry, Japan
Hitoshi NIWA

Japan has been considered a "super-aged society" since 2007. Moreover, it is expected that the number of elderly people with dementia will exceed 8 million by 2030. In 1991, the Japanese Dental Association proposed the "8020 Campaign", which encourages Japanese people to keep 20 or more of their own teeth even at the age of 80. This campaign is based on research that has demonstrated that elderly people with more than 20 teeth are able to have a healthy and comfortable life. At present, over 50% of elderly people in Japan have 20 or more of their own teeth. Considering these facts, it is reasonable to expect that the number of dementia patients with many teeth will rapidly increase.

Because difficulty in performing familiar tasks is a core symptom of dementia, patients' daily oral hygiene can become poor. Moreover, some of the behavioral and psychological symptoms of dementia, such as aggression and irritability, can make it extremely difficult for caregivers to perform oral care. Consequently, dental caries and periodontal disease can rapidly worsen.

Dentists are expected to be responsible for the timely and appropriate "maintenance and recovery of oral function", even for patients with severe dementia. However, standard oral care is not adequate for dementia patients with uncooperative behavior. These patients could benefit from pharmacological aids. The use of sedation is considered to be an effective method for overcoming these behavioral problems. Behavioral adjustment using sedatives could improve the quality of care and dental treatment for patients with severe dementia.

IFDAS Invited Lecture

Articaine. Risks and Benefits

Klinik für Mund- Kiefer-, Gesichtschirurgie Universitätsmedizin Mainz, Privatklinik IZI, Speicher, Germany
Wolfgang JAKOBS

Articaine originally synthesized as "carticaine" was released as local anesthetic in Germany in 1975 and became articaine in 1984. Today articaine products have a market share of 98 percent in Germany (GFK data) and 43 percent in the U.S. (SDM data). Articaine is currently worldwide registered in 71 countries, 24 countries in the European Union and in 45 nonEU countries. Articaine differs from other amide type local anesthetics because it contains a thiophene ring instead of a benzene ring. The thiophene ring attributes to the great lipid solubility which enables diffusion across the lipo-protein membrane to the intraneuronal sodium channel. The potency of a local anesthetic increases with the increasing lipid solubility. Many clinical studies comparing the local anesthetic potency of articaine with lidocaine (and other amide type local anesthetics) found it more effective and superior to lidocaine in many indications. Articaine contains an ester group that is hydrolized by esterase in the plasma and in the tissues. Because of the fast hydrolization by unspecific esterase, the plasma half-life of articaine is significantly shorter (about 20 minutes) than that of other amide type local anesthetics. The risk of systemic toxic reactions seems to be lower, especially if repeated injections are performed and higher doses of local anesthetics are given. In some retrospective studies of paresthesia cases an over representation of articaine has been reported in relation to its market share. The hypothesis that the use of articaine for an IANB might be related to a higher frequency of neurosensory disturbances like paresthesia is still under intense discussion. Evidence for an increased risk of sensory nerve disturbances with the use of articaine is lacking. In several *in vitro* investigations and in animal studies articaine proved to be less neurotoxic than lidocaine and other amide local anesthetics.

IFDAS Invited Lecture

Tailor-made Opioid Analgesia Based on Genome-wide Association Study

Addictive Substance Project, Tokyo Metropolitan Institute of Medical Science, Japan
Kazutaka IKEDA

Sensitivity to pain and opioids is individually different, which hampers efficient pain control. These individual differences are caused by genetic as well as environmental factors. We found associations between opioid sensitivity and several single-nucleotide polymorphisms (SNPs) of mu opioid receptor and G-protein-activated inwardly rectifying potassium (GIRK) channel. By further candidate gene analyses, SNPs of the voltage-gated calcium channel, β-adrenaline receptor, D_4 dopamine receptor, P2RX7 receptor, TRPC3, UGT2B7, P2Y12 receptor, resistin, and ATF2 have been revealed to be associated with pain and/or opioid sensitivity. Furthermore, we conducted a multistage genome-wide association study (GWAS), and found that SNPs within a 2q33.3-2q34 chromosome region were strongly associated with the requirements for postoperative opioid analgesics after painful cosmetic surgery. Furthermore, this SNP was significantly associated with the expression of a neighboring gene, *CREB1*. In addition, several GWAS revealed SNPs associated with opioid sensitivity, pain sensitivity, and sensory disturbances. To clinically apply these findings, we constructed prediction formulas for individual opioid analgesic requirements based on genetic polymorphisms and clinical data from patients who underwent cosmetic orthognathic surgery by multiple linear regression analyses. The utility of the prediction formulas was validated in patients who underwent major open abdominal surgery. By using the prediction formulas, we have started the personalized treatment of pain in patients who undergo cosmetic orthognathic surgery. Further investigations of genetic factors for individual differences in pain and opioid sensitivity will improve the personalized pain treatment and extend it to other pain treatments.

FADAS Invited Lecture

Perioperative Airway Management Strategy of Head, Neck and Maxillofacial Surgery

Shanghai Ninth People's Hospital, Shanghai JiaoTong University School of Medicine, China
Zhifeng CHEN

・A brief outline of the lecture

The first one：Preoperative airway evaluation of head, neck and maxillofacial surgery

The second one：Airway establishment of head, neck and maxillofacial surgery

The third one：Postoperative airway management of head, neck and maxillofacial surgery

JDSA Invited Lecture

人工神経を用いた再生医療と *in situ* Tissue Engineering

Application of Artificial Nerve：PGA-C Tube and *in situ* Tissue Engineering

京都大学再生医科学研究所
Institute for Frontier Life and Medical Sciences, Kyoto University, Japan
中村　達雄
Tatsuo NAKAMURA

京都大学で開発された人工神経（PGA-C tube）の基礎と臨床応用について述べるとともに，その開発の基礎となった *in situ* Tissue Engineering の概念について発表する．

in situ Tissue Engineering は世界に先駆けて本邦で提唱された概念であり，患部，すなわち，その場（*in situ*）で組織を再生させることを目指す．従来の Tissue Engineering が培養シャーレ中で組織を作成するのと対照的な手法である．従来は不可欠であった術前の組織採取や培養による組織作成の準備が不要なため，臨床へのハードルが低い．我々は人工気管をはじめ様々な部位への応用研究を続けているが，その一つに末梢神経の再生治療がある．

末梢神経の軸索は旺盛な再生能力を有するが，神経切断後は周囲の結合組織の治癒が先行し，再生をブロックする．そこで神経再生の「場」を確保する人工神経（神経ガイド管）が考案された．現在使用している PGA-C tube は生体内分解性高分子材料 PGA 線維とコラーゲンを複合化した管状構造物である．この人工神経（PGA-C tube）は大型動物を用いた動物実験で長期の有効性と安全性が確認されたのち，2002 年に倫理委員会の承認をえて，臨床使用が始まった．今日までに臨床で再建した神経は閉鎖神経，下腹神経，大腿神経，坐骨神経，大腿筋皮神経，後脛骨神経，浅腓骨神経，足背神経，脛骨神経，顔面神経，鼓索神経，反回神経，舌神経，下歯槽神経，腓骨神経，固有指神経，尺骨神経，正中神経，橈骨神経，腋窩神経，前腕内側皮神経がある．

臨床使用が開始され既に16年が経過しているが，運動神経や感覚神経機能の再生が臨床的に確認されたばかりでなく，これまで治療法がなかった難治性の神経因性疼痛に対しても画期的な効果があることが判明し，この分野での期待も高まっている．

Basic research and clinical application of artificial nerve (PGA-C tube) developed at Kyoto University and the concept of *in situ* Tissue Engineering will be described.

In situ Tissue Engineering is the new concept of a new regenerative medicine advocated in Japan and aims to regenerate the tissue in the affected area, that is, *in situ*. It is a striking contrast to the conventional Tissue Engineering, creating tissue in a culture dish. For this reason, it is unnecessary to prepare tissues in advance and culturing by culturing, which was indispensable in the past, which is characterized by low hurdles to clinical practice. We continue this applied research in various fields including artificial trachea. And one of them is peripheral nerve.

The PGA-C tube currently is a tubular structure composed of bioabsorbable polymeric material：PGA fiber and collagen. This PGA-C tube was confirmed for long-term efficacy and safety in animal experiments using large animals, and clinical use began with the approval of the ethics committees in 2002.

16 years have passed since clinical use has been started, and regeneration of motor nerve and sensory nerve function has been confirmed clinically after surgery, as well as clinically confirmed the refractory nerve trauma It has been found that it has a remarkable effect on neuropathic pain, and expectation in the field of intractable pain is also increasing.

Yasuya Kubota Memorial Lecture：久保田康耶記念講演

The Legacy of Japanese and American Pioneers in Dental Anesthesiology

Emeritus Professor, The Ohio State University, USA
Joel M WEAVER

Purpose：Describe the legacy of dental anesthesia pioneers.

In Japan and the United States, there have been many leaders in anesthesiology for dentistry. Japanese physician surgeon Seishu Hanaoka first administered general anesthesia in 1805, as did U.S. dentists Horace Wells (1844) and William Morton (1846). In the 20th century, Drs. Yoshimi Matsuda in Japan and Jay Heidbrink in the U.S. advanced anesthesia for dentistry. Later, Professor Emeritus Yasuya Kubota in Japan and Professors Morgan Allison and Leonard Monheim in the U.S. founded their respective dental anesthesia societies. The next generation included leaders such as Professor Emeritus Yuzuru Kaneko and Professor Emeritus John Yagiela. The legacy of their combined pioneering efforts includes：

Specialty of Dental Anesthesiology in Japan and in many states within the U.S.；Founding of the Japanese Dental Society of Anesthesiology, American Society of Dentist Anesthesiologists and American Dental Society of Anesthesiology：Formation of the Japanese Dental Board of Anesthesiology and American Dental Board of Anesthesiology：Increased number of dental anesthesiology residencies；Increased number of qualified dental anesthesiology faculty in residency programs；Increased number of departments of anesthesiology in dental schools headed by dentist anesthesiologists；Improved teaching of sedation and local anesthesia for dental students；Increased anesthesiology research and publications；Development of the Journal of the JDSA and Anesthesia Progress；Improved patient comfort during dental procedures；Improved patient safety during dental procedures；Leadership in the International Federation of Dental Anesthesiology Societies to improve international exchange of anesthesiology information.

JDSA Project Report：宿題報告

内因性疼痛調節機構の解明とその臨床応用の可能性
―動物からヒトへ　急性および慢性疼痛コントロールを目指したトランスレーショナルリサーチの軌跡―

明海大学歯学部病態診断治療学講座歯科麻酔学分野
大野　由夏

Diffuse noxious inhibitory controls（DNIC・動物）および conditioned pain modulation（CPM・ヒト）は，異分節もしくは同分節に与えた刺激が別の痛みを抑制する現象である．本現象は内因性疼痛調節機構に大きく関与しているがそのメカニズムは不明な点が多かった．演者らはこれまで内因性疼痛調節機構の解明とその臨床応用の可能性をさぐり以下の一連の研究を行ってきたので報告する．

１．DNIC/CPM の神経薬理学的メカニズムの解明

Dexmedetomidine（DEX，α_2作動薬），Phenylephrine（PE，α_1作動薬）を動物の全身または局所（青斑核・大縫線核）および健康被験者に全身投与した．DNIC/CPM を修飾する神経系が青斑核や大縫線核を含む脳幹に存在し，ノルアドレナリン系やセロトニン系の下行性抑制系が DNIC/CPM に関与していることが示唆された．

２．CPM の定性的・定量的研究

健康成人を対象とした研究から，CPM の疼痛抑制効果は条件刺激強度依存性であること，テスト刺激強度による差，性差および分節（同分節または異分節）による差がないこと，実験的急性疼痛により CPM が減弱しないこと等について明らかにした．また，様々な手法による CPM の評価法について解析・検証を重ね，CPM の定量的な評価法を確立した．

３．慢性疼痛患者および予定手術患者における CPM

顎関節症患者において CPM が減弱していることを報告した．また，口腔外科領域，とくに顎変形症手術において術前の CPM 測定は術後痛発症予測に応用できる可能性がある．

これら一連の研究は，内因性疼痛調節機構の解明に寄与し，CPM は術後急性痛および慢性疼痛発症予測，疼痛治療における薬剤選択の指標および治療効果判定への応用が期待できる．

The Elucidation of Endogenous Pain Modulation and Its Future Clinical Use —The Transitional Research from Animals to Human Beings for Acute and Chronic Pain Management—

Division of Dental Anesthesiology, Department of Diagnostic and Therapeutic Sciences,
Meikai University School of Dentistry, Japan
Yuka OONO

Diffuse noxious inhibitory controls (DNIC) is a phenomenon whereby the activities of convergent neurons in the spinal dorsal horn and trigeminal nucleus are selectively and powerfully inhibited by the application of noxious stimuli to any body areas distant from their excitatory receptive fields. It has recently been suggested that the DNIC-like effects in humans should be termed conditioned pain modulation (CPM). Though the DNIC/CPM is involved in endogenous pain modulation, the mechanism has been unclear. Therefore, in our group, the following translational research has been performed to clear the mechanism of DNIC/CPM and to aim for its clinical use.

1. The elucidation of the mechanism of DNIC/CPM in animals and humans

The local (direct to raphe magnus (RMg) and systemic administration of phenylephrine and dexmedetomidine in animals or humans suggests that RMg and locus coeruleus are involved in DNIC/CPM. That is, noradrenergic and serotonergic descending inhibitory systems could be involved in DNIC/CPM.

2. Quantitative and qualitative study for CPM in healthy humans

The character of CPM has been reported. In addition, the quantitative evaluation method of CPM was developed and suggested.

3. CPM in temporomandibular disorders (TMD) patients and pre-operative patient

CPM was attenuated in TMD patient(chronic pain patient). Pre-operative CPM effect was related to post-operative pain.

These data lead to the elucidation of endogenous pain modulation and suggest that CPM could be useful for better individualized and personalized pain management.

Joint Session of JDSA and Japan Dental Hygienist's Association：日本歯科衛生士会とのジョイントセッション

認定歯科衛生士の魅力を探る

Exploring the Fascination of Certified Dental Hygienist

歯科衛生士を取り巻く環境の変化と認定歯科衛生士への期待

The Changing Environment of Dental Hygienists and Future Perspectives for Certified Dental Hygienists

公益社団法人日本歯科衛生士会会長
President, Japan Dental Hyginists' Association
武井　典子
Noriko TAKEI

現在，就業歯科衛生士数は 123,831 人（H28 年）であり，その就業場所は歯科診療所が 90.6％と圧倒的に多く，次いで病院，市区町村，介護保険施設等の順です．

近年，地域包括ケアシステムの構築が急がれるなか，診療所の歯科衛生士にも変革が求められ，従来の外来患者中心の「歯科医院完結型」から「地域完結型」へと大きく変化しています．在宅療養者や要介護高齢者の口から食べる機能を維持して低栄養や誤嚥性肺炎を予防するなど，口腔衛生・口腔機能管理を担う歯科衛生士の役割に期待が高まっております．また，医療・介護と連携した歯科医療の推進を図るためには，入院患者等の口腔機能管理の充実とともに，在宅歯科医療に移行するためのサポートが必須であり，退院支援等の連絡調整に対応できる歯科衛生士が求められます．さらに，介護予防におけるフレイル予防を目指した口腔機能向上の推進が求められ，地域ケア会議等において歯科医療および口腔の健康ニーズを把握してサービス提供に繋げるなど，多職種連携による支援の重要性が高まっています．

これらのニーズに対応するうえで，歯科衛生士の人材育成・人材確保が喫緊の課題となっています．そこで本会では，平成 28 年より「歯科衛生士の人材確保・復職支援等に関する検討会」を設置，新人歯科衛生士の離職を防ぎ，復職を支援するための「新人歯科衛生士技術支援共通ガイドライン」「歯科衛生士復職支援共通ガイドライン」を作成しました．さらに，厚生労働省より「歯科衛生士に対する復職支援・離職防止等推進事業」の委託を受け，共通ガイドラインの実践に向けて，地域で実践を担う研修指導者や臨床実施指導者の育成研修をスタートしました．今後，認定歯科衛生士を中心に，地域で「歯科衛生士は一生の仕事！」を合言葉に，歯科衛生士のデビューから復職までを応援し，歯科衛生士に対する社会の期待に応えて参りたいと存じます．

Joint Session of JDSA and Japan Dental Hygienist's Association：日本歯科衛生士会とのジョイントセッション

認定歯科衛生士の魅力を探る

Exploring the Fascination of Certified Dental Hygienist

歯科麻酔と私，広がる世界観

Dental Anesthesia Creates Possibilities

横浜市歯科保健医療センター

Yokohama City Center for Oral Health of Persons with Disabilities, Japan

武居まゆみ

Mayumi TAKEI

記念すべき第１回目の日本歯科麻酔学会認定歯科衛生士試験で合格してから早くも３年が経ちました．当時は，歯科麻酔の分野も歯科衛生士の認定取得が可能になったことが新鮮でありました．同時に，全身管理に関する知識とスキルを持った歯科衛生士が求められる時代になった意義について考えさせられました．私が歯科麻酔の世界に足を踏み入れたのは，現在の勤務先である横浜市歯科保健医療センターにおいて，障がい者歯科診療に携わってからのことでした．障がい者歯科診療では，安全な治療を行うために全身麻酔や静脈内鎮静法などの薬物的行動調整は欠かせないものです．歯科麻酔科医の先生方と力を合わせて診療に当たっていくなかで，歯科衛生士は麻酔管理下においても，安全な医療を提供するチームの一員として重要な役割を担っているということを改めて実感しました．そしてその強い思いが，認定歯科衛生士取得へと私の背中を押してくれました．

晴れて日本歯科麻酔学会認定歯科衛生士となった現在，折に触れて思うのは認定取得＝ゴールではないということです．専門性をどう活かすことができるのか，ここから新たなスタートが始まると考えています．私は認定歯科衛生士（障がい者歯科）も取得しています．これらを通して得た知識やスキルは，日々の診療以外の場でも活かせるのではないかと考え，FADAS においてポスター発表を行うなど，歯科衛生士の可能性を広げる挑戦を続けています．専門性の高い認定歯科衛生士となって芽生えた自覚が，このような行動を起こすきっかけとなってくれました．歯科衛生士としての経験はもちろん，今までの人生経験やそこから学んだことを十分に活かし，自分自身の可能性を新たに伸ばしていくことが，魅力的な自分，魅力的な歯科衛生士への第一歩となるのではないでしょうか．

Joint Session of JDSA and Japan Dental Hygienist's Association：日本歯科衛生士会とのジョイントセッション

認定歯科衛生士の魅力を探る

Exploring the Fascination of Certified Dental Hygienist

老年歯科分野における認定歯科衛生士の役割

The Role of Certified Dental Hygienist in Gerontological Dentistry

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金子　信子
Nobuko KANEKO

日本の高齢化率は 27.7%（2017 年）の超高齢社会であり，日本人の死亡原因は 1 位悪性新生物，2 位心疾患，3 位肺炎となっている．この肺炎のうち 96%以上が 65 歳高齢者およびおおむねが誤嚥性肺炎といわれている．誤嚥性肺炎は口腔ケアで予防できることが知られているが，歯科衛生士が行う口腔健康管理は誤嚥性肺炎予防だけではない．あるアンケートによると，他職種が歯科衛生士に求めるいわゆる口腔ケアは「摂食嚥下機能の維持」が最も多かったという．介護報酬においても，経口維持加算の算定要件に歯科衛生士が関わることが加算対象にもなっている．つまり，現代の歯科衛生士は高齢者のなかでも機能低下が著しい要介護状態にある高齢者への対応が求められているといえる．要介護高齢者は脳卒中，転倒・骨折，認知機能の低下，パーキンソン病などによって要介護状態となり，多くの慢性疾患を抱えて個人差も大きい．このような状態の患者が穏やかに最期を迎えられるよう，歯科衛生士は摂食嚥下機能を含めた口腔健康管理を行って患者および家族を支えることが役割である．そのためには病態把握を行いながら，安全に配慮した医療を提供するためのリスク管理が重要となる．さらに，家族や患者と家族の生活を支援している職種に情報提供してお互いに協力しあえる関係をつくることも不可欠である．

日本歯科衛生士会の老年歯科分野認定は，病態やリスク管理の知識を取得した歯科衛生士が各地域で活躍している．歯科訪問のみならず歯科診療所に受診する要介護高齢者にも対応し，その信頼性は高い評価を得ている．今後 2040 年問題ともいわれる時代に向けて，老年歯科分野における認定歯科衛生士の必要性は高く，期待もされている．その一方で認定取得者が少なく，認定更新の課題も挙げられる．今回は認定取得している歯科衛生士の活躍内容の紹介と，今後の課題について改めて考えてみたい．

Joint Session of JDSA and Japan Dental Hygienist's Association：日本歯科衛生士会とのジョイントセッション

認定歯科衛生士の魅力を探る

Exploring the Fascination of Certified Dental Hygienist

認定歯科衛生士（医科歯科連携・口腔機能管理）として

Activity Reports on the Project of Medical and Dental Cooperation in a Dental Hygienist Who was Certified by Japan Society for Dental Hygiene

東京歯科大学市川総合病院歯科・口腔外科
Tokyo Dental College Ichikawa General Hospital, Japan
大屋　朋子
Tomoko OHYA

平成 24 年度に周術期口腔機能管理が診療報酬に新設されてから 6 年が経過しました．その後の改定により「緩和ケア」も対象となり，周術期口腔機能管理は「がんの支持療法」として位置づけられています．2 人に 1 人ががんに罹患すると言われる時代に，その需要はますます高まり，医科においても重要性が示されています．そのなかで，チーム医療や医科歯科連携に対応する歯科衛生士として，平成 28 年に医科歯科連携・口腔機能管理が認定歯科衛生士として新たに導入されました．

現在，病院に勤務する歯科衛生士が増加しているなかで，その役割は大きく変容しています．超高齢社会を迎え，全身疾患を有する患者が増加する一方で，歯科衛生士は口腔内だけでなく，全身に配慮し，口腔管理を行う必要が出てきました．そのため，全身疾患やがん治療などに対応する知識は必要不可欠となりました．患者の全身状態や治療時期に応じて，患者一人ひとりに合った口腔衛生管理を行うことが，患者への負担軽減や原疾患の治療に対するサポートにも繋がります．さらに原疾患の治療により不安を抱える患者に寄り添い，精神面からアプローチすることも患者を支える重要な項目の一つです．

また，病院内では栄養サポートチーム（NST）や呼吸サポートチーム（RST）などのチームに参加し，多職種の一員として患者を支える医療の提供に寄与しています．チーム医療のなかで，歯科衛生士は口腔衛生のプロフェッショナルとして，その専門性が求められています．

今回は，認定歯科衛生士として，当院で行っている周術期口腔機能管理やチーム医療を紹介するとともに，これからの認定歯科衛生士の役割を参加者の皆さまとともに考えていきたいと思います．

Symposium : IFDAS

Young IFDAS Symposium : Patient and Regulatory Limitations to IV Sedation

Distress Correction in Dental Practice

Moscow State University of Medicine and Dentistry, Russian Federation
Natalia N LETUNOVA

Objectives : Distress correction and compliance performing for dental patients suffering of dental phobia.

Materials and methods : Patients (84 persons, 48 men, 36 women) aged 18 to 54 who had strong fear before dental treatment were informed about dental procedures, that were needed for them for 5 visits. Distress level was checked by catecholamines in saliva, arterial blood pressure and heart rate, level of anesthesia—by electric pulp tester. 25 patients had a hypnosis sessions before procedures, 35 had motivational interviewing (MI) and 24 were treated with benzodiazepines. The level of oral hygiene was checked by PHP index every visit as an adherence to rehabilitation plan.

Results : Patients in the group with hypnosis sessions had a reduction of epinephrine in saliva from 1.17 ± 0.23 before 1st procedure to 0.22 ± 0.11 in the end of visit ($P<0.001$) and from 0.17 ± 0.07 before the 5th visit to 0.16 ± 0.1 ($P<0.001$). Patients in group of MI had 1.3 ± 0.51 before procedure to 1.04 ± 0.41 in the end of visit ($P<0.001$) and from 0.32 ± 0.12 before the 5th visit to 0.25 ± 0.15 ($P<0.001$). Group of benzodiazepines had 1.83 ± 0.46 before 1st procedure to 0.08 ± 0.01 in the end of visit ($P<0.001$) and from 1.23 ± 0.75 before the 5th visit to 0.06 ± 0.01 ($P<0.001$). All procedures were painless. There were no significantly difference in haemodinamic indicators in 3 groups, that determine safe treatment. PHP indenx was much lower in group of MI.

Discussion : Hypnosis, motivational interviewing and benzodiazepines are effective methods for distress correction for patients with dental phobia but MI helps to form better compliance

Symposium : IFDAS

Young IFDAS Symposium : Patient and Regulatory Limitations to IV Sedation

Research to Challenge Current Australian Guidelines Limiting Conscious Sedation to Those 65 Years of Age and Younger

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Nancy S CHEN[1,2)], Ken HARRISON[2,4)]
Mark SCHIFTER[3,4)], Christopher PECK[4)]

Currently, in Australia, age, that being aged 65 years or above, is used as an indicator of reduced physiological reserve and so is considered predictive of untoward complications with the use of dental conscious sedation. To date there has been little research if age, that is 65 years or older is a contraindication to the provision of conscious sedation for dental treatment.

We hypothesised that the number, type and severity of a patients' co-morbidities that is their "physiological age" rather than chronological age is a better predictor of complications with conscious sedation.

We undertook a retrospective analysis of 827 patients (to date) who underwent sedation to facilitate their dental treatment 2012–2017 at an oral health unit in a large tertiary metropolitan hospital in Sydney. Using logistic regression analysis and Spearman Rho correlation testing, we analysed whether variables, specifically the number, type and severity of the patient's medical comorbidities, and age above or below 65, were predictive of complications associated with sedation.

We aim to present the results of our interim analysis at IFDAS 2018. We predict that the study will confirm that it is the patients' physiological age, as determined by the number and severity of their medical comorbidities, rather than chronological age is a more significant risk factor for adverse complications associated with sedation for dental treatment. Consequently, a greater number of older patients will have increased accessibility to sedation to alleviate their fear and anxiety associated with dental treatment, therefore improving their oral health long-term.

The results of this study have the potential to improve clinical practice nationally and internationally by informing of the factors that place older patients at increased risk for perioperative complications with sedation and provide identification and stratification of the potential risks, so as to minimise complications associated with sedation provided to the elderly.

Symposium : IFDAS

Young IFDAS Symposium : Patient and Regulatory Limitations to IV Sedation

People, Politics, and Propofol : The Regulation of Deep Sedation and General Anaesthesia in Ontario, Canada

University of Toronto, Canada
Carilynne YARASCAVITCH

Dental anaesthesia is provincially recognized specialty in Ontario, Canada. It is unique in that this specialty status is not recognized nationally across other Canadian provinces and territories. The Faculty of Dentistry at the University of Toronto in Ontario is the only Canadian institution which offers a graduate specialty degree in Dental Anaesthesia. This presentation will describe the need, demand, and access to care for deep sedation and general anaesthesia in a Canadian context, and the atypical pathway by which Ontario dentist-anesthesiologists gained provincial specialty recognition. The regulatory landscape for deep sedation and general anaesthesia (DS/GA) will be explored in the context of recent events of morbidity in Canada. Current provincial standards of practice for DS/GA will be reviewed, including the common practice of procedural team anaesthesia, historically known as "operator anaesthesia". Documented rates of morbidity and mortality in Ontario will be presented to provide estimates of patient safety in Ontario under current regimens. Furthermore, a broad overview of demographics of practice will be illustrated to provide background on typical modalities and methods used by dentist anaesthesiologists in Ontario for comparison by audience members to local practices in other countries. Finally, developments for the future of dental anaesthesia in Ontario, Canada will be briefly acknowledged to generate discussion and sharing among colleagues.

Symposium : IFDAS

Young IFDAS Symposium : Patient and Regulatory Limitations to IV Sedation

Guidelines and Solutions for Dental Treatment in IV Sedation Patients in Israel

Hebrew University, Hadassah School of Dental Medicine, Oral Medicine, Sedation and Maxillofacial Imaging, Jerusalem, Israel

Robert YANKO

In Israel, after graduation from a dental school and receiving a license to practice, one can engage in any kind of dental procedure, including the most complex and challenging ones without any further studies or exams. The only field controlled by strict regulatory guidelines by the Israeli Ministry of health and its Dental Health branch is practicing dentistry under means of sedation and general anesthesia.

Ever since 1993 the guidelines are revised every few years by an appointed committee, and the practitioners need to comply with all amendments or new demands regardless of previous experience or place of practice—remote private clinic or university hospitals.

The directives for sedation, especially for moderate and deep IV sedation will be presented and some of the latest drugs, monitoring and anesthesia delivery devices used in our practice in compliance with the latest guidelines, to keep patients safe during these procedures will be discussed. Cases, demonstrating the advantages of the above procedures, will be shown.

Symposium : IFDAS

Young IFDAS Symposium : Patient and Regulatory Limitations to IV Sedation

The Current Status and Tasks of Japanese Dental Anesthesiology

Okayama University Hospital, Department of Dental Anesthesiology, Japan
Hitoshi HIGUCHI

In Japan, dentists basically are not subject to any regulations regarding the anesthetic management of dental patients. Therefore, there are no legal problems for dentists associated with the anesthetic management of dental patients, including the use of general anesthesia or intravenous sedation. In addition, Japan is a favorable environment for training in dental anesthesiology. Departments of dental anesthesiology, which train dental anesthesiologists, have been established at all 29 dental schools in Japan. The Japanese Association of Dental Anesthesiology (current membership : 3,547) runs two certification systems for dental anesthesiologists. One is the Japanese Board of Dental Anesthesiologists qualification (which requires more than 2 years' training), and the other is the Board Certified Dental Anesthesiology Specialist qualification (which requires more than 5 years' training). At present, 1,279 dental anesthesiologists with the Japanese Board of Dental Anesthesiologists qualification and 292 dental anesthesiologists with the Board Certified Dental Anesthesiology Specialist qualification are engaged in general anesthesia, sedation, the provision of pain clinics, and/or monitored anesthesia care in dental clinical practice. In this symposium, I would like to describe the current status of Japanese dental anesthesiology and the current tasks that the Japanese Association of Dental Anesthesiology is working on, such as theproduction of clinical guidelines and statements associated with dental anesthesiology. I hope that this symposium will help you to develop a deeper understanding of Japanese dental anesthesiology.

Symposium : IFDAS

Young IFDAS Symposium : Patient and Regulatory Limitations to IV Sedation

In Office Anesthesia
—Common Barriers to an Ever-changing Practice Modality—

CarePoint Anesthesia Group, USA
Kristopher SMITH

Purpose : To inform and collaborate with other practitioners around the world during the Young IFDAS symposium about 'in office anesthesia' in the United States. This lecture will be a brief insight to a common practice modality in the US as well as discuss some common barriers to this practice modality.

Methods : Use my own mobile anesthesia practice as the basis for the discussion while including input from other practitioners within the US.

Results : To show the ever-changing environment of dental anesthesia in the US, the difficulties and challenges faced when practicing in the US and the improvements and steps being taken to better our profession here.

Conclusion : For the audience to have a better understanding of dental anesthesia in the US and hopefully inspire them to engage in discussion about the profession.

Symposium : IFDAS

Non-odontogenic Tooth Pain : Diagnosis and Treatment

Myofascial Pain and Idiopathic Tooth Pain

Department of Dental Anesthesiology, Kyushu Dental University, Japan
Shunji SHIIBA

Non-odontogenic tooth pain is a toothache that is not caused by the tooth itself. Myofascial pain (MP) with referral and atypical idiopathic tooth pain (IP) are types of non-odontogenic tooth pain. This lecture presents diagnostic and recent treatment methods for MP and IP.

MP of the masticatory muscles such as the temporalis and masseter can cause referred pain that is felt in the teeth. The diagnosis of referred pain of the tooth is made by muscle palpation, to test if the tooth pain can be reproduced by compressing the trigger point in the muscle. It is therefore important to be familiar with referred pain patterns, as identified by Travell. Treatment for MP typically includes medications, trigger point injections, or physical therapy. No conclusive evidence supports using one therapy over another, but myofascial release is considered an important component, so we induce myofascial release by injection.

Due to unclear diagnostic criteria, there are few multidisciplinary studies related IP. It is presumed that IP is caused by inappropriate modification and amplification of pain information in the pain processing center of the brain (neuromatrix). Diagnosis of IP is often difficult, as it is based primarily on symptoms and on elimination of other possible disorders. Quantitative sensory testing may be useful for diagnosis, as patients can have somatosensory abnormalities such as mechanical allodynia and hyperalgesia. Tricyclic antidepressants (such as amitriptyline) can reduce IP, which is probably due to their analgesic effects, activation of the descending pain modulatory system, and optimization of the neuromatrix, and not due to their antidepressant effects. We suggest administration of tricyclic antidepressants as a treatment method for non-odontogenic tooth pain.

Symposium : IFDAS

Non-odontogenic Tooth Pain : Diagnosis and Treatment

Diagnosis and Treatment of Neuropathic Toothache

Division of Dental Anesthesiology, School of Dentistry, Health Sciences University of Hokkaido, Japan
Makoto TERUMITSU

Neuropathic toothache (NT) is one category of nonodontogenic toothache. NT comprises two groups. First, episodic NT is derived from trigeminal neuralgia or glossopharyngeal neuralgia. Note that these diseases, including pre-trigeminal neuralgia, may also cause toothache. Diagnosis and treatment are according to the several guidelines for neuralgia. Continuous NT results from endodontic treatment, tooth extraction, postherpetic neuralgia, or disorder of the central nervous system. Odontogenic causes of the toothache should first be ruled out at the time of diagnosis. Although traumatic neuropathy and deafferentation pain syndrome are presumably underlying, it is often difficult to confirm this. As a differential diagnosis, idiopathic toothache is similar to NT. It is not uncommon for ineffective treatments for NT such as pulpectomy and extraction of the aching tooth to be performed. Consequently, the pain may move to the adjacent tooth in many cases. Treatments for neuropathic pain are one effective method ; however, chronic NT tends to be refractory. We intend to use a number of example cases to discuss how to diagnose and treat NT.

Symposium : IFDAS

Non-odontogenic Tooth Pain : Diagnosis and Treatment

Differential Diagnosis of Nonodontogenic Toothache as a General Practitioner

Tsai Dental Clinic, Taiwan
Pung Fei TSAI

Orofacial pain is the most priority aim for patients to visit a dental clinic. Therefore, the valid diagnosis for management is significant, especial for a general practitioner.

Pain in orofacial region can be categorized into odontogenic and non-odontogenic toothache. Non-odontogenic toothache can be divided into eight groups as follows : 1) myofascial pain referred to tooth/teeth, 2) neuropathic toothache, 3) idiopathic toothache, 4) neurovascular toothache, 5) sinus pain referred to tooth/teeth, 6) cardiac pain refer to tooth/teeth, 7) psychogenic toothache or psychosocial origin and 8) toothache caused by various other disorders. Since the non-odontogenic pain will mimic dental pain, the differential diagnosis becomes a dilemma for a dental clinician who lacks the knowledge. Misdiagnosis problems and the inappropriate treatment will produce an irreversible and invasive damage to the patients, even have legal ramifications.

Due to arriving at a correct diagnosis and appropriate treatment for patient pain relief and oral rehabilitation, “non-odontogenic toothache diagnosis and treatment” should be a necessary and competitive issue for general dental practitioner.

Symposium : IFDAS

Non-odontogenic Tooth Pain : Diagnosis and Treatment

Non-odontogenic Tooth Pain-Neurovascular Origin : Diagnosis and Treatment

IFDAS Editor, University of California at Los Angeles, USA
Steven GANZBERG

Toothache of non-dental origin is not unusual. Referred pain, such as from a maxillary tooth to a mandibular tooth or from masticatory muscles to any tooth, is one example. Projected pain from sinus disease is a well-recognized cause of non-dental toothache. Neuropathic pains, such as Tic Douloureux and other trigeminal neuralgias, are also common. Neurovascular toothache is less common but is frequently misdiagnosed. The most common toothache of neurovascular origin is likely due to Cluster Headache. Sudden-onset, intense pain generally in the maxillary molars, with signs of facial parasympathetic overactivity (lacrimation, rhinorrhea, conjunctivitis, ptosis, miosis, etc.) and of short duration but with multiple episodes during the day is the classical presentation. However, variations do occur and this makes diagnosis challenging. Cluster headache variants, some being indomethacin responsive, can also occur. Least common are migraine variants that present as toothache, again, usually in the maxillary molars. These causes of toothache are frequently not properly diagnosed leading to multiple endodontic procedures or tooth extractions until a qualified orofacial pain management specialist takes a careful history and uncovers the true etiology of the oral or facial pain.

Symposium : IFDAS

Patient Safety during Sedation and General Anesthesia

Safety and Necessity of Intravenous Sedation in Geriatric Dental Patients

Department of Dental Anesthesiology, Faculty of Dental Medicine, Hokkaido University, Japan
Toshiaki FUJISAWA

Due to changes in population structure and medical advances, there has been an increase in the opportunity for us, dental anesthesiologists, to be involved in sedation or general anesthesia in elderly patients undergoing dental procedures or oral surgery.

In this presentation, I would like to discuss safety management during intravenous (IV) sedation of elderly patients from a pharmacodynamic and pharmacokinetic perspective. I also intend to discuss the risks and potentially necessary countermeasures in case of administration of the same drug dose to elderly patients as that used in young adult patients. I will do this using a simulation of blood concentration and our experimental results of bispectral index monitoring and precise dynamic posturography.

In addition to dental treatment of aged patients, that of patients with dementia also provides increased opportunities for sedation. We have already submitted a case report detailing the management of IV sedation needed for fitting a complete denture in a patient with severe dementia to a journal. During the peer-review process, I discussed : 1) the indication for dental treatment and 2) the indication for IV sedation from a safety perspective in patients with severe dementia, with an editor of the journal. I would like to outline that discussion and present my opinion on these two points.

Symposium : IFDAS

Patient Safety during Sedation and General Anesthesia

Should General Anesthesia be Avoided in the Elderly Dental Patients?

Department of Dent-oral Anesthesiology, Tohoku University Graduate School of Dentistry, Japan
Kentaro MIZUTA

The number of elderly individuals is increasing rapidly. During the next few decades, the share of global population above 65 years old is likely to rise to historically unprecedented levels (22% of global population, and 40% of Japan's population in 2050). Elderly patients undergo major surgery at a rate 2–4 times higher than younger patients, and older age is associated with an approximately 2.5-fold increase in the risk of postoperative morbidity and mortality. It was reported that those older than 65 years had a 1-year mortality rate of 10.3%, almost double that of the rest of the population at 5.5% (Monk TG *et al*., *Anesth. Analg*., 2005). It is well accepted that elderly patients are susceptible to postoperative delirium (POD) and cognitive dysfunction (POCD), which delay rehabilitation and further contribute to increases in postoperative morbidity and mortality. In addition, frailty is an independent risk factor for postoperative morbidity and mortality. Recent study has suggested that survival among frail patients is best in centers that care for large numbers of frail surgical patients (Mclsaac DI *et al*., *Anesthesiology*, 2017). Careful patient-centered management for elderly patients is essential to provide their best chance of returning to their preoperative functional status. This talk will present risk and safety concerns in general anesthesia for elderly, especially focusing on POD, POCD and perioperative frailty, and describe the treatment strategies by which such decline may be prevented.

Symposium : IFDAS

Patient Safety during Sedation and General Anesthesia

Korean Clinical Practice Guidelines of Dental Sedation

Seoul National University, Korea
Hyun Jeong KIM

Purpose : Clinical practice guidelines are recommendations in order to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options. Since 2010, the Korean Dental Association and the Korean Dental Society of Anesthesiology (KDSA) has released "Korean Clinical Practice Guidelines of Dental Sedation" in 2010 and 2016.

Methods : Korean Clinical Practice Guidelines of Dental Sedation 2010 was made by adapting and revising previous released guidelines related to sedation. Interestingly, it contains the valuable manual of dental sedation guidelines for the purpose of easy understanding and adopting in the dental clinic. However, it was not made according to a systematic review of evidence.

But, the Korean Clinical Practice Guidelines of Dental Sedation 2015 was based on a systematic review of evidence and now it is ready to be reviewed by the Korean Medical Guideline Information Center with AGREE II which is the international tool to assess the quality and reporting of practice guidelines.

Results : The two guidelines are the very first clinical practice guidelines related to the safety of office-based sedation in Korea not only in Dentistry but also in Medicine.

Conclusion : The KDSA is very interested in the safety of office-based dental sedation and prepares for the future because the national health insurance will reimburse according to the clinical practice guidelines.

Symposium：IFDAS

Patient Safety during Sedation and General Anesthesia

To Secure the Safety during Intravenous Sedation for Pediatric Dental Patients

ADSA Board, Desert State Dental Anesthesia, USA
Jason BRADY

1．Introduction：

Anesthesia can be delivered through many different routes. The various ways of administration have different benefits depending on the objective. Any course has the potential to induce any degree of sedation or anesthesia[1)]. Patients have variability in response to sedative agents, and the pharmacokinetics can modulate the profile of these drugs. For example, pediatric practitioners must take into account the different fears of their patient population. Children aged six months to four years often exhibit separation anxiety. From four years of age to adolescents they are less upset about separation and more concerned with bodily harm. Pediatric patients are not just small adults and have to be managed according to their unique needs.

2．Intended audience：

This course is intended for dental practitioners trained in the delivery of sedation, from minimal sedation to general anesthesia. The course is directed to dentists that provide care to children and the special needs population.

3．Educational rationale：

The goal of sedation is to allow the intended procedure to be completed safely and effectively. Pediatric patients have many different anatomical, physiological, and psychological difference than adults. Many of the critical points will emphasize recognizing what makes children different. It is important to appreciate these differences to provide optimal safety for the pediatric dental patients.

4．Discussion：

This course will discuss the anatomical, physiological, and psychological differences in children and different safety sedation techniques to treat them effectively. Sedation agents continue to evolve and improve. Many agents have multiple utilities and can be used to fulfill various objectives[2)]. Also, various combinations of different routes of administration can help achieve one's goals for sedation[3)].

The pediatric patient presents many challenges, and crisis events can escalate rapidity. Millions of children need dental care, and of them over 60% cannot cooperate with care.

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Symposium : IFDAS/FADAS

Systemic Management of Medically Compromised Dental Patients

Vital Sign Monitoring of Medically Compromised Dental Patients

Department of Anesthesiology, Asahi University School of Dentistry, Japan
Satoru SAKURAI

Advances in medical sciences and technology have further increase the survival of patients. On the other hand, advances in dentistry have ensured that elderly patients have many remaining teeth. Consequently, the number of dental patients with systemic disease, the so-called medically compromised dental patients, has increased substantially.

All dental and oral surgical procedures potentially are inducing stress. Such stress may be a physiological nature such as pain and strenuous exercise, or psychological nature such as anxiety and fear. One reaction of the body to stress is to increase the release of adrenaline and noradrenaline. This results in an increased workload for the heart by increased heart rate and strength of myocardial contraction, and myocardial oxygen requirement increases. Those stresses during dental procedures and the administration of local anesthetics including adrenaline may cause systemic disturbances in patients with systemic disease. Thus, it is desirable to monitor patients with systemic disease continuously in order to avoid potentially serious reactions. Monitoring during dental procedures provides valuable real-time information about the patient's status before an emergency occurs. Further, monitoring can assist the dentist in evaluating the efficacy of any emergency treatments or preventive measures. The essential monitors for systemic disease patients include noninvasive blood pressure monitor, pulse oximeter and electrocardiograph. The extra knowledge of these monitoring is effective to prevent complications causing unnecessary morbidity and mortality.

This lecture focuses on the monitoring of cardiovascular diseases which is the most frequently cited medical condition for patient referral from general dental practitioners to hospital departments.

Symposium : IFDAS/FADAS

Systemic Management of Medically Compromised Dental Patients

Ambulatory Anesthesia Management of Alzheimer, Stroke Patient

Department of Dental Anesthesiology, School of Dentistry, Seoul National University, Seoul, Korea
Kwang-Suk SEO, Cheul-Hong KIM

The demand for dental care in patients with Alzheimer, stroke has been on the rise over the past several years in Korea. Pharmacological behavior management methods, such as general anesthesia or sedation, are often required to treat these patients because of the difficulty in obtaining patient cooperation.

The ambulatory anesthesia in the dental office environment is common for these people. However, it also poses a significant disadvantage, in that, timely and appropriate after-care is difficult to provide in cases in which complications develop such as excessive bleeding, pain, chills, vomiting, lowered consciousness, airway obstruction, and pneumonia, after the patients are discharged.

Dementia is a non-congenital cognitive disorder characterized by speaking difficulty and reduced memory, problem-solving ability, and ability to carry on with daily living, as well as loss of socio-occupational functions over time. The most common cause of dementia is Alzheimer's disease (AD) (60–80%), and other causes include vascular (10%) and traumatic brain damage as well as systemic diseases, such as Parkinson's disease. This group of patients is older in age and has multiple comorbidities, which increases the risk of complications of GA, including reduced cardiopulmonary functions. Furthermore, preoperative tests cannot be adequately performed because patients tend to be uncooperative. Therefore, in this symposium, I will talk about proper anesthesia management for these patients.

Symposium : IFDAS/FADAS

Systemic Management of Medically Compromised Dental Patients

Is Dental Sedation Safe in Aged Patients with Cardiac Pathology?

Chief Department of Anesthesia and Intensive Care, Central Research Institute of Dental and Maxillofacial Surgery, Ministry of Health of the Russian Federation

Anton S DOBRODEEV

The aim of the study was to detect hemodynamic shifts during dental dexmedetomidine conscious sedation in aged patients.

Materials : We investigated the vital signs (heart rate, mean blood pressure, ST-segment of ECG) of aged patients suffering from arterial hypertension, coronary artery disease, atrial fibrillation under dexmedetomidine conscious sedation during dental treatment (group 1, n=67) in comparison with the same values in aged dental patients who have not got any sedation, but hemodynamic changes were controlled by titrating esmolol and enalapril intravenously (group 2, n=59). The average age (62±5 years and 64±4 years respectively) and concomitant diseases were comparable in both groups. The loading dose of dexmedetomidine within 15 minutes was 1 mcg/kg/hr and maintenance dose variated from 0.4 to 0.7 mcg/kg/hr to achieve the required level of sedation. Dental treatment in all patients was performed under articaine local anesthesia.

Results : Mean decrease in heart rate in both groups was 13.5±2.7% and 11.2±2.9% respectively. The average decrease in mean blood pressure reached 24.3±1.2% in group 1 and only 10.6±4.3% in group 2. There were detected no changes in ST-segment of ECG in both groups. No cardiovascular complications were registered during dental treatment and on the next day in both groups.

Conclusion : Significant decrease in mean blood pressure in group 1 was contributed to sympatholytic and sedative effect of dexmedetomidine. The absence of notable changes in other vital signs and no systemic complications indicate safety of dexmedetomidine dental sedation in aged patients suffering from cardiac diseases.

Symposium : IFDAS/FADAS

Systemic Management of Medically Compromised Dental Patients

Systemic Management of Dental Patients with Cardiovascular Diseases

Moscow State University of Medicine and Dentistry, Russian Federation
Nikita A RYAZANCEV, Eugenia N ANISIMOVA

Purpose : This study was designed to develop a workflow of dental care for patients with CV and CrbV events based on collaboration of neurologists, cardiologists and dentists.

Methods : 230 patients were divided according in to two groups : 1) 112 with CV event (54 men and 58 women), 2) 118 with CrbV event (62 men and 56 women). All patients underwent dental examination with PHP index investigation. Both patients and nurses were given essential information on means and ways of maintaining oral hygiene. Then we selected 100 patients with CV event during first year and 100 patients with ischemic stoke according to the following criteria : 1-20 points on NIHSS and 1-3 points on modified Rankin's scale. In collaboration with neurologist we formed three groups according to pathogenetic subtype of ischemic stroke : a) 35 patients (16 men and 19 women) with atherothrombotic, b) 34 patients (18 men and 16 women) with embolic, c) 31 patients (17 men and 14 women) with small vessels stroke. Patients were monitored during and after the dental treatment. Treatment parameters and outcome were compared.

Results : Dental examination showed poor hygiene level of stroke survivors no matter what kind of CrbV or CV event has occurred. Values of PHP index was 2.28±0.05 for 1) and 2.53±0.05 for the 2) groups. Treatment included professional oral hygiene, preventive and surgical treatment and were aimed to eliminate oral associated chronical infection sources. All of them were completed uneventfully. Values of PHP index improved to 1.17±0.05 for 1) and 1.58±0.05 for 2) groups. No clinical complications were noted in either group after treatment.

Conclusion : Within the limits of our study, it appears that dental treatment may be safely administered in patients even week after the CV and CrbV events according to the developed workflow.

Symposium : IFDAS/FADAS

Local Anesthesia Update : Strategies for Safe and Effective Outcomes

Electrical Devices for Effective Local Anesthesia

Section of Anesthesiology and Clinical Physiology, Department of Oral Restitution,
Tokyo Medical and Dental University, Japan
Ryo WAKITA

Local anesthesia is necessary in routine dental procedure, because many of dental treatment includes painful treatment. Local anesthetic has been developed in accordance with the progress of pharmacology such as lower toxicity, faster onset, longer duration and more reliable effect. However, local anesthesia method itself has not seen significant change since the invention of the syringe 160 years ago.

One of the major reasons that many patients are reluctant to undergo dental treatment is the pain. Local anesthesia and anesthetic is applied to avoid these kinds of invasion. Whereas sometimes maneuver of local anesthesia itself can cause pain sensation derived from the puncture or injection pressure. Even now, in sites kind like lower molar section, patients have to tolerate pain during the dental procedure, because local anesthesia is often ineffective. Furthermore, pain stimuli give a significant impact on the whole body, such as respiration and circulation. Especially, implementation of local anesthesia without pain to the patients with systemic diseases or elderly patients is important for the safe management.

In recent years, various devices have been developed in order to achieve pain relief during local anesthesia. In this section, I will outline the features of these various electrical and innovative devices which include topical anesthesia, electric syringe and intraosseous anesthesia in addition to application of iontophoresis, vibration and laser irradiation for reduction of invasion of local anesthesia.

Symposium : IFDAS/FADAS

Local Anesthesia Update : Strategies for Safe and Effective Outcomes

Safe and Effective Modified Periodontal Anesthesia for All Dental Procedures

Moscow State University of Medicine and Dentistry, Russian Federation
Natalia N LETUNOVA

Objectives : Development of an effective and safe way of multi-purpose local anesthesia with less volume for all groups of teeth.

Materials and methods : 3,500 patients have been examined (2,228 women, 1,272 men, aged 18-70 for who's dental care was perphormed 4% articaine without epinephrine, and 1 : 400,000, 1 : 200,000, 1 : 100,000 on Pulpal Blood Flow (PuBF) and Periodontal Blood Flow (PeBF).

The technique of modified periodontal anesthesia (MPA) : short cutting needle should be set on gingival form point on vestibular medial surface on lower and upper jaws at an angle from 45° to 90° till the bone slowly enter no more than 0.2-0.3 m*l* with the speed 1 m*l* per 1 min (healthy gingiva or remised peridontitis). Noticed ishemization of mucose indicates correct point of local anesthesia position. A new injection with a new needle also can be used from oral medial surface at the opposite gingival form point if needed. Assessment of efficiency and safety was carried out subjectively on Visual Scale (AVS) and objectively by meanings of the PBF was monitored by a laser Doppler flowmeter (LDF). Pulpal anesthesia was assessed with an electric pulp tester (EPT) observing the protocol of performing local anesthesia and monitoring indicators of atrerial blood flow.

Results : MPA injection caused a decrease in PuBF in molars from 7.75±4.05 perfusion units (P.U.) before injection to 2.17±1.88 P.U. 5 min after injection ($P<0.001$), in PeBF from 14.12±8.15 P.U. before injection to 6.88±4.52 P.U. ($P<0.001$). Duration of the anesthesia is 5-20 minutes with 89.3%-95.3% efficiency. No changes at haemodinamic indicators had been registrated.

Conclusions : Registration of PuBF and PeBF and EPT changes has defined MPA as a safety and effective method of local anesthesia that can be recommended for all patients.

Symposium : IFDAS/FADAS

Local Anesthesia Update : Strategies for Safe and Effective Outcomes

Techniques for Reducing Patient's Fear of Local Anesthesia

Faculty of Dentistry, University of Padjadjaran, Bandung, Indonesia
Kirana Lina GUNAWAN

Dental anxiety and phobia is the most problem during dental treatment reported by many authors as the first etiology for patient to avoid it's treatment. It is also closely connected with the fear of local anesthetic injection itself.

It can be identified by interviewing the patient or can be reported by the patient at the first visit the dental clinic, or by the assessment of vital sign.

These conditions often required behavioral management as a non-pharmacological intervention ; sedation and general anesthesia as a pharmacological intervention to carry out the dental treatment, depending on the level dental anxiety itself and the type of the patient.

The techniques for reducing patient's fear which decide by the operator is different for the children and adult patients, including the use of computer-controlled local anesthetic delivery devices during conscious dental treatment in Special Care Dentistry Clinic ; Nitrous Oxide Inhalation Sedation can be used for mild anxious patient ; however extremely anxious patient have to be be treated in the operation room under the general anesthesia.

Symposium : IFDAS/FADAS

Local Anesthesia Update : Strategies for Safe and Effective Outcomes

Nerve Toxicity of Local Anesthetics

Faculty of Dentistry, University of Toronto, Canada
Daniel A HAAS

Although local anesthetics are very safe, neuropathies can occur following their administration. Commonly called paresthesias, these sensory abnormalities can, at times, be permanent. The etiology is not known with certainty but *in vitro* studies support a mechanism of dose-dependent neurotoxicity. Studies investigating nonsurgical paresthesia in dentistry include 3 retrospective evaluations of the incidence of this occurrence in the province of Ontario, Canada, covering the periods 1973–1993, 1994–1998 and 1999–2008. Each time the conclusion was that the incidence was rare, but compared with other local anesthetics, a statistically significant higher incidence was found with either of the 4% solutions used, namely articaine and prilocaine. The mandibular block and the lingual nerve were involved most often. An assessment of the United States Food and Drug Administration Adverse Event Reporting System from 1997–2008 found that nonsurgical paresthesia following local anesthetic administration was significantly greater with either of the 4% solutions available. Again, the mandibular block and lingual nerve were affected in the vast majority of cases. A 2015 study by different authors assessed the same database and came to the same conclusion. In 2006 and 2011 Danish researchers found that 4% articaine was more likely to be associated with nerve injury than other local anesthetics. A 2012 study of reports from the United Kingdom came to the same conclusion. The data from these studies suggest that post-injection paresthesia following a mandibular block is more likely if a 4% local anesthetic solution has been administered.

Symposium : FADAS

Pain for Dental and Maxillofacial Area

Dental Anesthetic Approach for Dental and Maxillofacial Pain at Nippon Dental University Hospital

Department of Dental Anesthesia, The Nippon Dental University Hospital at Tokyo, Japan
Yoshiki SHIONOYA

Herein, we report on several cases related to dental and maxillofacial pain, which were referred to the Department of Dental Anesthesia, Nippon Dental University Hospital at Tokyo. The first type comprises cases referred because local anesthesia was unsuccessful, resulting in difficult dental treatment. In these cases, there are two possibilities : either local anesthesia was administered and was unsuccessful, or the patient's extreme fear resulted in difficult treatment. In such situations, dental anesthetists perform local anesthesia or use it in combination with intravenous sedation methods. Another type of referral case involves maxillofacial pain with no identifiable dental cause. For these cases, we conduct re-examination to determine dental and/or oral surgical factors. These re-examinations are conducted because certain causes of pain, such as pulpitis, apical periodontitis, and maxillary sinusitis, are frequently unnoticed. If no dental or oral surgical causes are found, the case is referred to the Neurosurgery Department for examination of the possibility of pressure on cranial nerves, caused by blood vessels or brain tumors. When cranial nerve abnormalities are not identified, carbamazepine and/or pregabalin are administered, along with nerve blocking. We consider patient interviews to be important, and we use these to determine treatment plans in combination with diagnostic and imaging findings. This presentation introduces cases that have completed our process. Wide-ranging knowledge related to general dentistry, oral surgery, pain clinic treatment, and general medicine, in addition to the foundational knowledge related to anesthesia, may assist dental anesthesiologists in achieving effective treatment.

Symposium : FADAS

Pain for Dental and Maxillofacial Area

Pain Management after Oral and Maxillofacial Surgery

Department of Anesthesia, Peking University School of Stomatology, China
Xudong YANG

Postoperative pain after oral and maxillofacial surgery is usually moderate. However, it is not well controlled in many units. The guidelines recommend multimodal analgesia. In our department, we use Flurbiprofen and Dezocine to reduce Opioids consumption, Dexmedetomidine for sedation after flap surgery. We also try to use more regional nerve block for postoperative pain management. Furthermore, a lot of future work are needed to reduce pain after oral and maxillofacial surgery.

Symposium : FADAS

Pain for Dental and Maxillofacial Area

Non-odontogenic Pain : the Clinical Challenge

Mahidole University, Thailand
Somsak MITRIRATTANAKUL

The most challenging decision in dental clinical practice is making the right diagnosis. When dentists encounter the atypical presentation of pain in orofacial region, this could be difficult situation if the basic knowledge about orofacial pain is lacking. This presentation will provide the basic knowledge of orofacial pain theory as well as pain condition that could present as toothache. The common non-odontogenic pain that could occur in the tooth area is myofascial pain, neuropathic pain and neurovascular pain. These pain condition do share certain neurological mechanism and this explained these unique phenomenal. Clinical examination tips and diagnostic procedures that could help to obtain the correct diagnosis will also be discussed.

Symposium : FADAS

Pain for Dental and Maxillofacial Area

The Potential Role of Stellate Ganglion Block for Orofacial Pain

Anesthesiology and Pain Medicine, School of Dentistry, Kyungpook National University, Daegu, South Korea
Younghoon JEON

Orofacial pain is often distressful complaint, which results from various etiologies such as trauma, procedure, blood vessel, infection and idiopathic factor. It is sometimes resistant to medication and intervention, leading to psychological problems. It has been shown that sympathetic nerve system (SNS) is usually involved in the various pain disorders such as post-herpetic neuralgia, complex regional pain syndromes and orofacial pain. Stellate ganglion is a sympathetic ganglion that innervates head, neck, and upper extremity. The stellate ganglion has extensive neuronal connections to hypothalamus, amygdala, infralimbic, insular, and ventromedial temporal cortical regions. The analgesic mechanism of stellate ganglion block (SGB) is unclear. It can be explained by blocking neuronal connection of its sphere of innervations of stellate ganglion. In addition, because abnormal contact develops between the SNS and the sensory system following peripheral nerve injury SNS block can decrease pain by directly inhibiting afferent nociceptive stimuli traveling via sympathetic pathways. Recently, it was found that SGB has sedative effects in preclinical and clinical study. The sedative effects of SGB can be one of therapeutic actions for treating various pain disorders. In conclusion, SGB can provide a valuable diagnostic and therapeutic benefit for treating different types of facial pain. Ultrasound guided SGB significantly improve quality and safety of block compared to traditional blind technique.

Symposium：JDSA

女性歯科麻酔科医シンポジウム「歯科麻酔をあきらめない～つなぐために～」
Explore Your Career as a Dental Anesthesiologist：Keep Your Dreams, the Road Goes On

開催趣旨

東京医科歯科大学大学院医歯学総合研究科麻酔・生体管理学分野
Anesthesiology and Clinical Physiology, Tokyo Medical and Dental University, Japan
松村　朋香
Tomoka MATSUMURA

男女共同参画社会という掛け声は，あちこちで無数の女性進出論を産み出しました．特に人材不足に悩む医科麻酔領域では，学会主体となった女性麻酔科医の復職支援・学会シンポジウムなどが散見されます．今回広報委員会に「女性歯科麻酔科医シンポジウム」についてお話をいただいた時，これまでに他学会で行われた同趣の企画と同じ轍を踏み，先輩女性歯科医師の苦労話を聞いて，一方的な権利主張に終わる…といった流れを危惧しました．一方で私たちが過去に行ってきた歯科麻酔の認知，学術研究と臨床の両立といった広報委員会企画で,「いわゆるライフイベントという壁に当たった時，どうやったら歯科麻酔を続けられるか？」を具体的に考えたテーマが議論されてこなかったことに気付いたのです．女性であれ男性であれ，せっかく歯科麻酔の世界に飛び込んで努力したのに，出産・育児だけでなく，それぞれの事情で歯科麻酔を諦めざるを得なくなった，というお話を聞き続けるのはいかにも残念です．社会のなかで「歯科麻酔科医」というポジションはまだまだ発展途上にあります．このシンポジウムでは多くの若い世代の歯科麻酔科医に「つなぐため」に，歯科麻酔科医が「もしも」の時にも好きな仕事をずっと続けられるヒントが得られるように，こんなにも魅力に溢れた歯科麻酔をあきらめなくて済むように，皆さんと一緒に考えていきたいと思っています．

Symposium：JDSA

女性歯科麻酔科医シンポジウム「歯科麻酔をあきらめない～つなぐために～」
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自分には何ができるか？
～つなぐとは？～

What is Your Attractive ?
—Your Experience will Lead to a Better Tomorrow—

東京医科大学八王子医療センター麻酔科
Tokyo Medical University Hachioji Medical Center, Japan
高橋奈々恵
Nanae TAKAHASHI

“つなぐ”には様々な意味があります．明日への自分，周りとの関係，次世代への継承などでしょうか．読んでくださっている先生ごとに，しっくりくる言葉は違うと思います．先生ごとに当てはまる，ご自身の言葉と，どう向き合っていけばいいのか一緒に考えていく会を予定しています．

「なんくるないさ」「一帆風順」など，日本には素敵な言葉がたくさんあります．壁を感じた時，大きく深呼吸してみましょう．普段は患者さんの心拍音に耳を傾けている先生方もご自身の心音を聞いてみてください．先生方には支えてくれている存在が，必ずあります．

私は今，病院歯科で歯科麻酔に携わっています．ここまでの道のりは平坦ではありませんでした．今後も泥道，きつい上り坂が予想されます．在職年数を重ねるごとに意識していったのは，『いかに医科麻酔との違いを打ち出していけるか』です．歯科麻酔科医は気道管理の特殊性に始まり，鎮静のテクニックでも胸を張れます．しかし，現実は厳しいものがあります．医科と比べて症例数に限りがあるからです．手術室での気道管理のアドバイス，動揺歯の抜歯，外れた顎の整復などの需要もわずかです．麻酔維持管理料が算定できないハンデも抱えながらどうやっていくのか？　当院のような保険診療を基本とした病院歯科では，常に何かと繋げていけないか模索する努力が欠かせません．幸い，周術期管理料強化の追い風が吹いてきていますが，まだまだこれからです．学生，研修医指導，研究との並行など様々なことが求められています．常に高みを目指していく姿勢と，タフな精神力が必要不可欠です．息切れしないように，鈍感力も併せて大切です．

歯科麻酔スピリットを発揮して人生の様々なステージを乗り越え，どう明日へつなげるか．明日の「歯科麻酔」を作る．その原動力になるのは，まさに今の先生方の思いです．女性の先生はもちろんのこと，男性の先生のご参加も心よりお待ちしております．

Symposium：JDSA

女性歯科麻酔科医シンポジウム「歯科麻酔をあきらめない～つなぐために～」
Explore Your Career as a Dental Anesthesiologist：
Keep Your Dreams, the Road Goes On

歯科麻酔をあきらめない
～つなぐために～
Explore Your Carrier as a Dental Anesthesiologist：
Keep Our Dreams, the Road Goes On

M's Dental Office, Japan
佐橋　倫恵
Michie SAHASHI

このシンポジウムでは私は『フリーランス歯科麻酔医』としての立場からお話をさせていただきます．

『好きなことを仕事にする』『フリーランスで仕事をする』．働き方の変遷はいつの時代も議論に上るのが世の常で，歯科麻酔の分野に限りません．どの業界でも上記のようなことは言われ続けていました．そんな巷で言われている自由な働き方を叶えているはずの私ですが，何故だろう，実際はものすごく不自由だし泥臭い仕事なのです．歯科麻酔自体がニッチな分野であること・フリーランスが安定しない業態であること，その２つが合わさっているのだから当然です．独立して６年経った今でも，この業態で歯科麻酔を生涯の仕事として続けていけるか不安に思うことも多いです．

でも，この働き方を始め，悩むことはあっても一つ断言できることがあります．それは「歯科麻酔は凄く楽しいし素晴らしい職業だ」ということ．だから，若手の先生や結婚出産で働き方の変更を余儀なくされた女性の先生方に歯科麻酔を仕事にすることを諦めて欲しくないのです．このシンポジウムの題名を『歯科麻酔をあきらめない』としたのは，そんな我々の思いが詰まっています．

しかし，身を以て実感しているのが，歯科麻酔医側もただ仕事を待っているだけでなくこの分野を如何に臨床に落とし込んでいくのかを模索する必要があるということです．そして歯科麻酔学の存在感を出すためにも“正しい歯科麻酔”を我々歯科麻酔医側が一緒に仕事をする臨床医と患者様側に普及する必要があると感じています．

このシンポジウムでは，立場の違う女性歯科麻酔医の経験を中心に議論し，歯科麻酔を諦めないために何が必要かを考える時間となります．歯科麻酔をつないできた世代からは若い世代へのエールやアドバイスを，引き継ぐ世代からは不安や悩みなど率直なご意見を頂戴し本音で語り合う時間にしましょう．男女・世代問わず皆様のご参加，お待ちしております．

Symposium：JDSA

広報委員会・地域医療委員会合同企画シンポジウム
「地域包括ケアとその周辺―歯科麻酔科医はこれからの地域共生社会にどう活躍を―」
Community-based Integrated Care System：
Role of Dental Anesthesiologists in an Inclusive Society

地域共生社会に果たす歯科麻酔科医の役割

Role of Dental Anesthesiologists in Regional Symbiotic Society

望月歯科
Mochizuki Odontology Department, Japan
望月　亮
Makoto MOCHIZUKI

「住み慣れた地で　その人らしく」と要約される地域包括ケアシステムは深化している．その支援対象は制度の整った高齢，障がい，児童に止まらず，地域で生活に困窮している方々も含めた「我が事，丸ごと」の支援が求められている．そのような中で，数多くの専門職がいかに手を携えて支援の輪を拡げるか，また歯科がその中でどのような役割を果たしうるのかについて，明確に説いた論考は極めて少ない．

多くの論者は地域包括ケアにおける歯科の役割を口腔に限定している．それは食支援であったり，口腔清潔であったりあるいは摂食嚥下も含まれよう．しかしほんとうにそれだけだろうか？　歯科が持つ鋭敏な異常発見機能は，児童虐待をはじめとしてようやく気づかれつつある．多職種協働のカギを握るのは言うまでもなく医師だが，歯科医師は極めて医師に近いうえに多くのフリーハンドを持ち，福祉領域にも近い仲立ちとなりうる．そして医師とのかけはしになりうる歯科医師のうち，最も持てる機能を発揮できるのが他ならぬ歯科麻酔科医ではないだろうか．

司会者はここ数年にわたって，自らの実践に基づき各所で地域包括ケアに果たす歯科の役割を発信してきた．これは畢竟，歯科麻酔科医であるが故になし得た部分が極めて大きい．多くの職種をまとめて有機的なチームを結成し，自らは黒子となってチームを目指す医療成果に導く，このような私たちの日常が多職種協働のコーディネータとして遺憾なく発揮されうるのは，むしろ当然のことと自負してよい．

本シンポでは，歯科麻酔科医のこうした特質をまず再確認する．そして地域共生社会の実現にどのような歯科医師が望まれているのか，歯科麻酔科医はその特質を生かして，歯科の果たす理想の役割にいかに近づきうるのかを論じたい．そして，歯科麻酔の路に進んでよかった，とフロア皆が充足感に満たされる結末に導きたい．

Symposium：JDSA

広報委員会・地域医療委員会合同企画シンポジウム
「地域包括ケアとその周辺―歯科麻酔科医はこれからの地域共生社会にどう活躍を―」
Community-based Integrated Care System：Role of Dental Anesthesiologists in an Inclusive Society

歯科麻酔科医ならではの活躍の余地

The Field of Activity Unique to Dental Anesthesiologist

愛知学院大学歯学部附属病院麻酔科
Department of Anesthesiology, School of Dentistry, Aichi Gakuin University, Japan
中野亜希子
Akiko NAKANO

「歯科麻酔科医ならでは」というと，鎮静法や全身麻酔をかけることを思い浮かべる人が多いのではないでしょうか．しかし地域共生社会において求められている歯科医師の役割は，勿論麻酔をかけることではありません．もっとも，現在は鎮静法や全身麻酔をかけていない歯科麻酔科医も少なくないと思います．ではなぜ，地域共生社会において歯科麻酔科医ならではの活躍の余地があるというのでしょうか．

われわれは歯科麻酔の経験を通して，豊富な医学的知識を持ち，術前に危険を察知する能力や，術者や患者からの要望に対応する柔軟性を培ってきました．また，多職種と協働することや，主役ではなくサポートする立場であることに慣れています．このような歯科麻酔科医の特質は，歯科医師の中でも異色であり，正に地域共生社会において求められているものと言えます．演者のような，ごく一般的な歯科麻酔学会員に何ができるのかを考え，実際に活躍の場を広げていけるようなシンポジウムにできたらと思っています．

Symposium：JDSA

広報委員会・地域医療委員会合同企画シンポジウム
地域包括ケアとその周辺―歯科麻酔科医はこれからの地域共生社会にどう活躍を―
Community-based Integrated Care System：Role of Dental Anesthesiologists in an Inclusive Society

医療を取り巻く環境からみた地域包括ケアシステムで歯科麻酔科医に期待される役割

The Expected Role of Dental Anesthesiologist in the Community Based Integrated Care System

医療法人社団仁屋会片山歯科医院
Katayama Odontology Department, Japan
片山荘太郎
Sotaro KATAYAMA

医療を取り巻く環境を考えるとき，診療報酬改定に着眼すると理解しやすい．なぜなら診療報酬改定は，医療政策の強力な経済的誘導手段だからである．歯科が置かれている環境を整理し，歯科麻酔が今後も社会から必要とされ続けるための新たなる活躍の場について議論を深めたい．

平成 30 年度改定は，2025 年問題を目前とした実質，医療と介護の最後の同時改定で，その狙いは地域包括ケアの実現である．歯科診療報酬改定においても，従来の歯の形態回復を主体とした医療機関完結型医療から，口腔機能の回復を主体とした地域完結型医療へのシフトが明確となった．医学管理を中心に大幅な改定がなされ，全身管理や医科歯科連携に関する部分が拡充された．このことは，これまで日本歯科医学会を中心としてエビデンスを構築し発信してきたことが保険収載という形で実を結んだことにほかならない．今後は，われわれがしっかりとサービスを提供し，QOL の向上と健康寿命の延伸に向けて結果を出していくことが求められている．

地域包括ケアシステムの中で歯科に求められることは，多職種協働の輪に溶けこみ口腔の専門家として，生涯を通じて切れ目のない口腔機能の管理を行うことで，国民の健康寿命の延伸と QOL の改善を側面からサポートすることにある．歯科麻酔科医は，歯科医師の中でも医師をはじめとする医療スタッフとの連携やマネジメントに優れた専門家である．今次改定の方向性に鑑みると，いまほど歯科麻酔科医の役割が求められているときはないと思われる．超高齢社会で有病者や全身的なフレイルを有した患者が増加する中で，歯科麻酔科医が培ってきたマネジメント力を地域包括ケアシステムの中でいかに発揮し，社会に貢献できるかまたとない好機であり，このシンポジウムがその足がかりの一端に寄与できればと考えている．

Hands-on Seminar：IFDAS（JDSA-ADSA）

Ten Minutes Saves a Life！™ Anesthesia Research Foundation Emergency Manual—Workshop©

ADSA Board, ARF App Co-developer, USA
Jason BRADY

1．Introduction：

Ten Minutes Saves a Life！™ Emergency Manual©—Workshop© (TMSL-EM) will be given at the International Federation of Dental Anesthesiology Societies in Nara, Japan on Friday, October 5, 2018. Workshop participants will be placed into realistic clinical situations representing emergencies that can be encountered during all levels of sedation. Participants will be trained in emergency management principles for each scenario.

2．Intended audience：

This course is intended for dental practitioners trained in the delivery of sedation, from minimal sedation to general anesthesia. Emergency scenarios will be customized to the level of sedation and anesthesia the practitioner provides. Course participants will have a low student to faculty ratio and receive valuable hands-on experience.

Emergency crises are best managed with a team approach, and participants will practice scenarios in groups.

3．Educational rationale：

Adverse effects in the dental office range from those requiring very little intervention, to those requiring very complex actions. Failure to properly intervene in a crisis can result in disability or death. Crisis events can precipitate other crisis events. For example, local anesthesia toxicity includes symptoms of CNS excitement such as auditory changes, circumoral numbness, metallic taste, and agitation. If not properly treated, symptoms then progress to seizures and/or CNS depression (coma, respiratory arrest). The workshop course emphasizes early detection, prompt airway and situational control, cardiovascular support and early activation of the emergency system.

For all medical emergencies in the dental clinic, the practitioners need to be adequately prepared in the following areas：

R – Recognition of emergency
P – Positioning of the patient
A – Airway (assessment of airway patency)
B – Breathing (assessment of breathing)
C – Circulation (assessment of pulse)
D – Diagnosis, definitive therapy
E – Emergency medical services

Having a rehearsed and clear plan of action in case of emergency is crucial in preventing and managing rare but potentially devastating complications.

4．Course description：

This course will include pre-workshop didactics, followed by a review of essential emergency management principles. Participants will then break into smaller groups to practice emergency patient management with the TMSL-EM. Each participant will contribute to the scenarios in a team approach. The scenarios will be tailored to the provider's level of sedation experience. Following each scenario, participants and instructors will debrief their experience and discuss the efficacy of each intervention.

【References】

1) Neal JM, Bernards CM, Butterworth JF, et al. ASRA practice advisory on local anesthetic systemic toxicity. Reg Anesth Pain Med 2010；35：152–161.
2) Rosenberg M. Preparing for medical emergencies：the essential drugs and equipment for the dental office. J Am Dent Assoc 2010 May；141 Suppl 1：14S–9S. PMID：20436085.
3) Brooks-Buza H, Fernandez R, Stenger JP. The use of in situ simulation to evaluate teamwork and system organization during a pediatric dental clinic emergency. Simul Healthc 2011 Apr；6(2)：101–8. PMID：21358566.

Hands-on Seminor：paperChart

paperChart ワークショップ・ハンズオンセミナー
今日から出来る電子麻酔記録
～出来るようになるまで徹底的に教えます！～

主催：paperChart 研究会，明海大学歯学部歯科麻酔学分野
モデレータ：小長谷　光

paperChart は Windows 上で作動するフリーの自動麻酔ソフトウェアです．paperChart は使用できるバイタルサインモニターは特定の会社に限定されておりません．操作が簡単で，拡張性にも優れ，大規模病院での導入実績も数多くあります．歯科医院でも導入実績があり鎮静法の麻酔記録管理として使用できます．マニュアルが充実しており，全国の多くのユーザーが互いにサポートする体制が整っております．

今回，初歩的・基本的なことから学んでいただけるワークショップを企画いたしました．どのように設定しどのように使えばよいかをハンズオン形式で易しくご説明します．

本ワークワークショップは 2 部構成で行われます．

ワークショップ 1 は paperChart をご存じない方を対象として PC と実際のモニターを接続する方法を易しく解説します．歯科医院での導入に興味のある方，スタンドアローンで明日から使用してみたいと考えている方に最適なコースです．必要なスキルはありません．Windows PC の電源を入れればそれで結構です．

ワークショップ 2 はアドバンストコースです．ワークショップ 1 で設定した PC とモニターを使用し，それらをネットワークでつなぎ，参加者皆さんで模擬手術室管理システムを構築します．またバイタルサインモニターの他にもシリンジポンプなど様々な機器を接続してみます．またすでに paperChart ユーザーで使用方法などについて疑問がある方に対してエキスパートがお答えします．ワークショップ 1，2 連続参加も可能です．事前登録が必要となっております．登録されない方の当日立ち見は自由です．ご興味のある方はぜひブースへお立ち寄りください．

【開催概要】
日時：2018 年 10 月 7 日（日）10：00～12：00
会場：企業展示会場
予定インストラクター：
斎藤智彦（岡山ろうさい病院）・岩瀬良範（埼玉医科大学）・鈴木史人（国立病院機構あきた病院）・
今村敏克（明海大学）・内田茂則（明海大学）・小林克江（明海大学）・牧野兼三（明海大学）・
髙木沙央理（明海大学）・大野由夏（明海大学）・小長谷　光（明海大学）

■事前申し込みが必要です（締め切りは 10 月 1 日まで（予定））．
氏名，ご所属，参加希望ワークショップ（1，2，両方）などを記載してメールでご連絡ください．
事前の質問も受け付けております．
連絡先：明海大学歯学部歯科麻酔学分野　049-279-2738（TEL・FAX 兼用）　yoono@dent.meikai.ac.jp
担　当：大野由夏

PaperChart Work Shop Hands on Seminar
Let's Come to a Complete and Easy Understanding for Using the Electronic Anesthesia Chart!

Moderator : Hikaru KOHASE (Meikai University, Japan)

PaperChart is a free Windows application of electronic anesthesia records, and available for many vital sign monitors (Nihon Kohden, GE, Philips, Fukuda Denshi, etc.) and peripheral electronical devices (Syringe pump (Terumo, Daiken Medical), ABL, Epoc blood analysis system, BIS (Aspect), Vigilleo (Edwards)). Many paperChart users at dental offices and hospitals mentioned that paperChart is easy to operate and use just like conventional anesthesia records. PaperChart provides high module scalability, perfect manual and user supports by paperChart users all over Japan.

This time, paperChart Workshop presents how to set up your own windows PC and how to connect vital sign monitors and peripheral devices for the participants of JDSA, IFDAS and FADAS meetings.

Workshop consists of two courses.

Workshop 1 is a best selection for unknown users of paperChart who would like to use in the dental office for sedation and standalone way without network circumstances. NO technical skill and knowledge for PC are needed, just need the skill to able to turn on your own PC!

Workshop 2 is an advanced course. Virtual operational anesthesia recording system will be constructed by network connection using set up PCs in Workshop 1. Other devices including syringe pump, vigilleo monitors, BIS monitors etc. will be set up for own PCs. Experts will comment on daily questions from paperChart clients. Successive workshop (Workshop 1 and 2) participants are available.

Please bring your own windows PC!! We also wait for you without your PC. Register by Oct 1. No registration is needed for just standing and looking at WS. Please don't hesitate to contact us.

(e-mail yoono@dent.meikai.ac.jp)

Basic Lecture : IFDAS/FADAS/JDSA

Respiratory Management during Intravenous Sedation

Department of Perioperative Medicine, Division of Anesthesiology, Showa University School of Medicine, Japan
Takehiko IIJIMA

Intravenous sedation using midazolam and/or propofol provides a comfortable condition for both the dental patient and the dentist. This anesthetic regimen is basically safe as long as the patient remains conscious. In patients who are prone to unconsciousness, however, the upper airway tract can become obstructed, resulting in hypoxia and hypercapnia with potentially life-threating consequences. To ensure the safety of procedural sedation, careful monitoring of the respiratory condition is necessary. The observation of chest wall movement is a primary form of monitoring, but quantitative monitoring should also be performed. While pulse-oximetry can preclude deoxygenation, oxygen desaturation warnings may have already been at "the edge of a cliff over a dangerous valley." Thus, more predictable monitoring should be considered. Capnography and acoustic respiration rate monitoring can be used as forms of routine monitoring for the detection of upper airway narrowing and obstruction. However, the accuracy, sensitivity, and specificity of these monitors might not be satisfactory, depending on the monitoring conditions. Combinations of these monitoring devices can improve the detectability of respiratory depression. In addition to respiratory monitoring, oxygen supplementation may be required to prevent life-threatening desaturation. Although oxygen supplementation can cause delays in the detection of airway obstruction, it does give the provider time to address airway management. For safe respiratory management, the choice of anesthetics and adjuvants is a key point to consider. Avoiding deep sedation help to ensure that the upper airway remains open. An integrated system that includes monitoring, drug selection, and oxygen supplementation is necessary for procedural sedation providers to ensure patient safety.

Basic Lecture : IFDAS/FADAS/JDSA

Stellate Ganglion Blockade Revisited

Department of Orofacial Pain Clinic, Osaka Dental University Hospital, Japan
Yasushi SAKUMA

The stellate ganglion (SG) is a sympathetic ganglion that is present anterior to the seventh cervical vertebra. SG blockade (SGB) with a local anesthetic leads to vasodilation as a result of sympathetic nerve block. Physicians and dentists in Japan who specialize in pain treatment have frequently used SGB for the treatment of facial pain and sensory/motor paralysis since the 1970s, and have confirmed its effects.

The effects of SGB have often been shown by case-control studies, but re-evaluation in terms of evidence-based medicine (EBM) is necessary. However, there have been only a few studies conducted at a high evidence level.

Makharita et al. reported that SGB with bupivacaine and dexamethasone is effective for relieving pain associated with herpes zoster in the trigeminal nerve area and preventing postherpetic neuralgia. Salvaggio et al. reported a reduction in the visual analog scale (VAS) score for facial pain after SGB. Sakamoto et al. reported the effects of SGB on trigeminal neuropathy while Nogami et al. showed its effects on alveolar nerve paralysis.

Basic Lecture : IFDAS/FADAS/JDSA

The Inhalation Sedation Method as One Application of Systemic Management and Behavior Management

Special Care Dentistry, Matsumoto Dental University, Japan
Tadashi OGASAWARA

Anxiety, fear and pain at dental treatment will easily change the general condition. The stress of anxiety, fear and pain may cause a change in the general condition, especially in patients with cardiovascular diseases such as hypertension, heart failure, ischemic heart disease, and arrhythmia. There are many patients at risk in a super-aging society. In addition, patients with dental phobia, dementia or intellectually disabled have panic or refused behavior due to slight pain or fear and cannot receive dental treatment. Dentists who do not give anxiety, fear or pain during dental treatment can get the stability of patients' mental states and vital signs, leading to safe and secure dental treatment. The use of nitrous oxide inhalation sedation is useful for safe and secure dental treatment. However, the inhalation sedation method cannot obtain a certain effect only by inhaling O_2/N_2O. In order to use the inhalation sedation method, it is necessary to understand and properly use nitrous oxide. The inhalation sedation method, unlike general anesthesia or intravenous sedation, does not necessarily provide a definite effect such as the complete control of pain and mental state.

However, by properly using it after understanding some information, it can be one means for effective behavior management. This lecture explains the clinical signs from inhalation times and each concentration of nitrous oxide in inhalation sedation, the indications, the contraindications, the tips on use, and the limits in order to obtain beneficial effects for systemic management.

Basic Lecture : IFDAS/FADAS/JDSA

Palliative Care for the Patients with Oral Cancer

Tokyo Dental College Ichikawa General Hospital, Japan
Toshiya KOITABASHI

Palliative care is an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness. The principles to treat cancer pain can be summarized in 5 steps : By mouth, By the clock, By the ladder, For the individual and Attention to detail. When satisfactory alleviation of cancer pain cannot be achieved, opioid-resistant cancer pain should be assessed. Opioid-resistant cancer pain includes under-dosing, poor absorption of opioids, raised intracranial pressure and neuropathic pain. In cases of neuropathic pain, adjuvant analgesics such as anticonvulsants or antidepressants should be considered. Tapentadol is an innovative centrally acting analgesic agent that has dual mechanisms of action : mu-opioid receptor agonist and noradrenaline reuptake inhibition. Tapentadol is effective for both nociceptive and neuropathic pain. Hydromorphone is an opioid analgesic made from morphine. Hydromorphone is served as an extended release formulation which is taken once daily.

In the field of oral cancer, oral route frequently becomes unavailable due to surgery, radiation and tumor progression. Therefore, only parenteral route can be used. Transdermal fentanyl patch is one of the most popular options for these patients. But, we have to know the pharmacokinetic properties of transdermal fentanyl that it needs longer time to achieve the stable blood concentrations following the administration.

Both prevention and appropriate interventions of opioid related adverse effects such as constipation, nausea and vomiting and drowsiness are one of the key components to continue to treat cancer pain. Naldemedine is peripheral mu-opioid receptor antagonist to treat opioid induced constipation.

Basic Lecture : IFDAS/FADAS/JDSA

Anesthesia Management for Jaw Deformity Surgery

Department of Dental Anesthesiology, Tokyo Dental College, Japan
Nobuyuki MATSUURA

Because oral surgery under general anesthesia involves surgery in the upper airway, careful attention must be paid to airway management before, during, and after the procedure. Surgery to correct deformities of the jaw involves a wide range of upper airway procedures including splitting and movement of the jawbone to improve malocclusion, articulation disorder, and facial asymmetry. As a result, jaw deformity surgery often confronts difficulties in airway management throughout the perioperative period, including difficulties in intubation, postoperative bleeding and edema, and intermaxillary fixation. Because patients undergoing corrective surgery are usually healthy adults, the surgery is not usually complicated by difficulties with general anesthesia management. However, patients with jaw deformities should be fully evaluated preoperatively to assess the anatomy around the oral cavity and the difficulty in intubation. Also, anesthesiologists must constantly pay close attention to the postoperative condition of the change in pharyngeal morphology after movement of the mandible or airway obstruction due to bleeding or edema at the surgical site. In this basic lecture, I would like to describe the characteristics of general anesthesia during surgery for jaw deformities and basic precautionary statements for patient management.

Basic Lecture：JDSA

知って得する！　感染管理
―滅菌消毒の基礎知識―
Basic Knowledge of Infection Control

医療法人寛友会浅賀歯科医院
Asaka Implant Center, Japan
阿部田暁子
Akiko ABETA

今日マスコミでは様々な医療器具においての滅菌に関する報道が繰り広げられています．その内容は患者さんへの治療に対する不安や不信感を招くものが多く，医療現場の環境，モラル，知識が改めて問われる状況です．その背景には，歯科医院の感染管理の知識のレベルが異なり統一されていないことも問題となります．そしてようやく意識が高まりつつある中で，2018年4月より院内感染防止策に関する施設基準が新設されました．

患者さんが歯科治療に求めていることは，「安心だからこそ安全で信頼のおける医療」です．一般社団法人日本医療機器学会では，現在約4,300名の第2種滅菌技士の取得者がおり，そのうち約200名の歯科衛生士が取得し，滅菌に関する正しい知識を持ちながら安全な医療のために日常の臨床に携わっています．

本日は「滅菌と消毒の違いがわかりますか？」「様々な滅菌や消毒の方法について知っていますか？」「滅菌器に入れた器具は本当に滅菌できていますか？」「グローブは患者さんごとに替えていますか？」「これっていつまで滅菌できているの？」「血液の付いた器具，まず始めにすることは何？」「なんでもかんでもアルコールワッテで拭いていませんか？」など，目からうろこの滅菌の基礎知識について，医療現場に求められていることを再認識し，日常の臨床現場で決して避けては通れないプロセスをもう一度振り返ってみましょう．知っていると得する情報があるかもしれません．

Basic Lecture：JDSA

PK/PD に基づいたテーラメイド麻酔の実現
How to do Tailor-made Anesthesia Based on Pharmacokinetics and Pharmacodynamics

関西医科大学麻酔科学講座
Department of Anesthesiology, Kansai Medical University, Japan
萩平　哲
Satoshi HAGIHIRA

私が研修医であった当時は MAC（minimum alveolar concentration）の概念を基準にした麻酔薬濃度の調節が一般的であった．1990 年代に MAC を規定しているのは脊髄であり体動は意識や記憶とは無関係であることが明らかとされ，また同時期にほとんどの麻酔薬には抗侵害受容作用がないことも示された．これらのことから 21 世紀では鎮静・鎮痛・無動化を別個に管理するバランス麻酔の概念が一般化した．

しかしながら欧米では MAC を拡張して response surface モデルや isobologram（等価曲線）の概念を導入した．Isobologram は，response surface の局面を目的の確率平面で切った時にできる曲線であり，この曲線上の各点では刺激に対する応答確率が同じであるというものである．しかしながら先に述べたようにそもそも体動や循環変動といったかつての麻酔の指標は現代では適切なものではないことが示されているのであり，これらの概念を用いて麻酔管理を考えることも適切ではない．麻酔薬，鎮静薬，筋弛緩薬にはそれぞれ相互作用はあるが，基本的には鎮静・鎮痛・無動化は独立したものとして評価し管理すべきである．

現実の麻酔管理では一旦適切な鎮静が得られれば，術中は鎮痛をコントロールすることができれば良いのである．鎮静のモニターとしては脳波モニターが普及しており，脳波モニターと麻酔薬の薬物動態・薬力学（PK/PD）を組み合わせてみることで，個々の患者に必要な麻酔薬濃度を判定することが可能である．鎮痛に関しては適切なモニターは現在のところ存在しないが，刺激に対する交感神経系の応答や脳波変化などと PK/PD を組み合わせればある程度まで判断ができる．本講演では，テーラメイドな麻酔を行うための基本概念およびその実践方法について解説したい．

Basic Lecture：JDSA

麻酔中のアナフィラキシー
Anaphylaxis during Anesthesia

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日本では薬剤によるアナフィラキシーショックによって毎年50〜80人程度が死亡している．日本医療安全調査機構は病院内でアナフィラキシーによって死亡した12例の解析を行い，原因薬の内訳は造影剤4例，抗菌薬4例，筋弛緩薬2例，局所麻酔薬1例，蛋白分解酵素阻害薬1例であったと発表した．これらは麻酔科医が日常的に扱っている薬剤である．麻酔中にアナフィラキシーの起こる確率は5千から1万例に1例程度と考えられており，決して高い数字とはいえない．しかし，いちど発生すると生命の危険に繋がるため，麻酔科医は麻酔中にアナフィラキシーを起こしやすい薬剤や発生時の対応について学んでおく必要がある．

我々が近隣の病院で麻酔中に発生したアナフィラキシー症例を対象に最近行った調査の結果，原因薬剤を同定することのできた22例の内訳は，スガマデクス6例（32%），ロクロニウム5例（27%），抗菌薬4例（23%）などとなった．最終的な結論を得るためには大規模な疫学研究が必要であるが，我々の調査で上位となった薬剤によるアナフィラキシーの発生頻度は高いと考えられる．

麻酔中にアナフィラキシーが発生した場合の対応について，日本麻酔科学会はワーキンググループを結成してガイドラインを作成中である．麻酔中に特化したものではないが，日本アレルギー学会が，日本の実情に合わせて初期対応や薬物治療の選択肢などをまとめたガイドラインを2014年に発表しており参考になる．重症例では症状の進行が非常に速いため，患者の救命には麻酔科医の迅速な判断がカギとなる．なかでも，アナフィラキシーを疑ったら可能な限り早期にアドレナリンを投与することが重要である．

アナフィラキシーへの初期対応がうまくいっても，原因薬剤を同定しておかなければ再発のリスクがある．我々はアナフィラキシー再発防止のために原因薬剤の同定に力をいれており，その方法についても言及したい．

Basic Lecture：JDSA

バイタルサイン・モニター心電図の見方
―今さら人に聞けないベーシック Ver―
The Viewpoints of Vital Signs and Electrocardiogram
―Basic Version―

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歯科治療における全身的偶発症は，かつては局所麻酔に関連して多く発生していたが，最近は歯科治療開始前から発症した症例や，局所麻酔に関連しない場面で発症することが少なくない[1)]．また，日本は超高齢社会となり，全身管理の重要性が増している．われわれは，待合室で発作性上室性頻脈を生じた症例[2)]や表面麻酔をしただけで発作性心房細動を生じた症例[3)]，気管吸引を契機に発作性心房細動を生じた症例[4)]などを経験している．歯科治療のために来院した患者の全身状態を，治療中や局所麻酔時のみならず常に留意する必要がある．そのためには，目の前の患者がどういう状況であるのかを診断する必要があり，バイタルサイン（脈拍・呼吸・血圧・体温）さらにモニター心電図の所見や動脈血酸素飽和度の情報が必須である．これらの知識が曖昧であればあるほど，患者の全身状態の変化や異常に対応することができない．

本講演では，全身的偶発症の症例を紹介しながら，バイタルサインの測定の仕方やモニター心電図の基本をおさらいし，診療に応用できる知識を解説する．

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Luncheon Seminar 1

共催：株式会社セキムラ

笑気を知ることのベネフィット
―笑気の底力と歯科医療への新たな挑戦―
Benefit of Knowing the Nitrous Oxide
―The Real Ability of the Nitrous Oxide and New Challenge to Dental Treatment―

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笑気は1772年，イギリスの化学者ジョゼフ・プリーストリーにより作られ，1800年に同国の化学者ハンフリー・デービーによりその鎮痛効果が紹介され，外科手術への応用が示唆されました．その後，しばらくは歴史の影に潜むことになりますが，1844年に当時巡演公演中の「笑気ショー」を見学していた歯科医師のホーレス・ウェルズによって笑気麻酔が発見され，抜歯術に使用されたのが世界最初の臨床報告であると言われています．

その後多くの吸入麻酔薬が開発されましたが，笑気は副作用が少なく鎮痛効果が強いという点から，現在でも最古の吸入麻酔薬として世界各国の医療機関で使用されています．しかし，我が国ではどうでしょうか．笑気は歯科医療の現場で使用されているものの，鎮痛効果ならびに鎮静効果が不十分であるという印象が少なくなく，その普及率に歯止めをかけています．また人体や環境に対する影響なども問題視されている点から，全身麻酔の領域では皆無と言っていいほど使用されなくなっています．それでは，何故，笑気は現在もなお世界各国で使用され，またその有用性について多くの報告がなされているのでしょうか．それはやはり笑気に優れた効果があるからではないでしょうか．よって今回，笑気に関する様々な研究報告や臨床実績を調査し，私なりに歯科医療への新たな可能性を検討してみました．

笑気は歯科医療の現場で，特に小児歯科や障害者歯科の領域では広く使用されており，行動療法と併用することでより有効な結果を示すとされています．特に海外では，その使用は歯科にとどまらず，小児科や産婦人科，救急外来において幅広く活用されており，投与方法や投与濃度も様々です．一方，笑気の鎮痛効果は，主にNMDA受容体を阻害し下降性抑制系を活性化させることにより引き起こされますが，最近では神経因性疼痛にも有効であるとの報告があり，術後鎮痛への応用が模索されています．次に鎮静効果の機序については解明されていない点が多々ありますが，関連する徴候や大うつ病に対する抗うつ効果についての報告を踏まえてご紹介いたします．以上のことを踏まえ，今後，笑気が歯科医療においてどのような可能性を持つのか，そしてその「ベネフィット」を皆様にお伝えすることができましたら幸いです．

Luncheon Seminar 1

共催：株式会社セキムラ

小児救急医療における笑気活用

Efficiency of Using Nitrous Oxide in Pediatric Emergency Department

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小児科診療において鎮静を行う機会は成人患者より多く，外科的処置や検査，場合によっては診察においても鎮静を要する場合があります．その方法は経口投与や坐剤投与，静脈内投与など様々ですが，他の診療行為と同様リスクとベネフィットを考えながら行われます．しかしながら，小児患者は鎮静のリスクが高く，急性期医療においては適切な鎮静や鎮痛を受けられていないという現状が報告されています．そして鎮静が行われる場合でも，鎮静中の監視体制や鎮静後管理など，安全に関する体制が不十分であることがしばしばあることも報告されています．このことは今後の小児救急医療の課題であり，もちろん本邦においても同様のことが言えます．

今回，歯科麻酔学会でセミナーを担当させていただくなかで，まず小児救急診療における鎮静の役割や現状について報告をさせていただきます．そして笑気の使用に関してはまずは他国の状況から話させていただきます．米国では，小児救急外来における鎮静に笑気を用いる機会が増えてきており，その導入の簡便さや他の鎮静法と比しての合併症の少なさからも，今後の使用が増えてくることが予想されます．本邦においても救急外来での使用経験をもつ施設が存在し，知識や施設環境の整備が広まれば使用頻度の増加が予想されます．米国の小児救急外来における笑気を用いた鎮静の現状を，当院において近年行われた笑気を用いた鎮静の経験を交えて報告させていただきたいと思います．小児救急医療における鎮静に関してお話をさせていただくなかで，笑気による鎮静のメリットをお話しするとともに，笑気特有の注意事項や今後の課題を学会に参加されている歯科麻酔の先生方と共有できればと思います．

Luncheon Seminar 2

共催：デンツプライシロナ株式会社

開業医に伝えたい局所麻酔の使い分け
How We Recommend to Select Optimal Local Anesthesia for Open Practitioners

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ここに集った皆様は，全身麻酔や鎮静法の専門家が多いと推測するが，歯科業界では 99% 以上の処置に局所麻酔が用いられ，この方法が必要不可欠なことは論をまたない．120 年以上前から優れた痛みの管理法として局所麻酔薬が用いられている．患者にとっては快適かつ安全で，術者にとっては簡便で効果の確実な局所麻酔に関する情報を提供することは，私たち歯科麻酔を専門とする者に対して，強く求められている．しばしば，在野の一般開業歯科医師から局所麻酔について質問や相談を受ける．いわく「こう，しっかり効く麻酔法はありませんか？」や「こういう患者の抜歯をするのですが，局所麻酔薬は何を使ったらよいでしょうか」「カートリッジは何本まで使えますか？」などである．さらには「今，抜歯をしているのですが，なかなか抜けなくて患者が痛がりだしたのですが，どうしたらよいですか？」という切羽詰まった電話をいただいたりすることがある．

局所麻酔薬として，現在，わが国では歯科用のカートリッジタイプでリドカイン，プリロカイン（プロピトカイン），メピバカインの 3 種が提供されており，リドカインは 4 商品，プリロカインとメピバカインは，それぞれ 1 商品の計 6 薬剤が各社より市販されている．私たち歯科麻酔の認定医・専門医は，患者の状態や術式に応じた的確な局所麻酔の使い分けを，一般開業歯科医師に向けて指導・提案する立場にあると言える．静脈内鎮静法の適応や禁忌，全身麻酔の特徴や使用薬剤を紹介することも必要であるが，日々使われている局所麻酔薬の特徴や使用法について，講演会や研修会，スタディグループで的確にアドバイスすることも，専門とする立場からは重要な役割と考える．

そこで，このランチョンセミナーでは，上記の 3 種・6 薬剤の局所麻酔薬の特徴を確認するとともに，それらの使い分けをわかりやすく，私たちの立ち位置から開業歯科医師に解説するための tips を紹介したい．