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The Cutting Edge of Transcatheter Arterial Micro Embolization (TAME)
Innovative Approaches to Inflammatory Diseases

Okuno Clinic.
Chief Director Dr. Yuji Okuno

Musculoskeletal disorders are considered one of the primary factors shortening healthy life expectancy, yet conventional treatments have had limitations. In this article, we spoke with Dr. Yuji Okuno, the developer of TAME, about the current practice of the treatment, its relationship with the healthcare system, and its international expansion. This treatment is expected to be applied not only in orthopedics but also in multiple specialties such as urology, dermatology, and otolaryngology.

Intervention for Abnormally Proliferating Vessels: Treatment Principles and Multidisciplinary Application

Dr. Okuno's concept of "abnormally proliferating blood vessels" describes a pathological state where abnormal vascular structures cause pain and inflammation, leading to symptoms. The fundamental principle of TAME is to selectively embolize these abnormal vessels using a catheter, thereby alleviating symptoms. A key feature is the short embolization time of approximately 30 minutes, resulting in very low physical burdens on patients. Dr. Okuno conceived this idea in 2007 and began clinical research in 2012. He opened a specialized clinic in 2017 and has performed approximately 15,000 treatments to date.

Dr. Yuji Okuno's Profile
Founder of Okuno Clinic and developer of TAME. Conceived the idea in 2007, he began clinical research in 2012 and opened his clinic in 2017. Currently operating as a "specialist clinic for pain and inflammation," his clinic treats a wide range of conditions beyond orthopedics. He has particularly established catheter-based treatments targeting abnormal proliferating vessels—that cause inflammation—accumulating approximately 15,000 treatment cases to date. Internationally recognized, he will host the international conference VENTI (Vascular Embolization for Non-Tumor Inflammation) on TAME in November 2025.

"This approach isn't limited to musculoskeletal conditions; it can be widely applied to disease fields involving inflammation, such as urology, dermatology, breast disease, and otolaryngology," Dr. Okuno states. "For diseases like chronic prostatitis, where effective treatments are currently scarce, our approach offers a new option." Dr. Okuno explains the current situation: "Chronic prostatitis treatment is primarily symptomatic, a challenging area even for urologists. While recognition is still low, TAME has been welcomed in practice."

Interaction with the Healthcare System and Prospects for Insurance Coverage

In Japan, insurance coverage is key to the widespread adoption of this treatment. Clinical trials are currently underway for "Tendinopathy and Enthesopathy." "If this treatment becomes covered by insurance within the next two years, we anticipate a significant increase in patient numbers. Furthermore, expanding its application to other body parts is highly feasible," Dr. Okuno shares his outlook.

In the United States, insurance coverage for this treatment is already available for osteoarthritis of the knee in some occasions, drawing intense attention as a promising therapy. Insurance coverage signifies that the treatment has been recognized for its "medical validity" and "necessity," promising a strong evaluation indicator. "The U.S. has high receptivity to new treatments, and many physicians come to our clinic to learn. We consider establishing a training center in the U.S. in the future to promote the spread of this technology," Dr. Okuno stated. He says that they are already exploring realistic possibilities for disseminating the technology in the U.S. by partnering with companies.

Beyond general hospitals, the U.S. has concepts like Office-Based Labs (OBL) and Ambulatory Surgery Centers (ASC) that operate catheterization rooms. These provide relatively safe, outpatient catheter treatments, offering patients convenient access and lower medical expenses. Given that mus-

culoskeletal disorders are closely tied to daily life, such outpatient musculoskeletal catheter treatments are expected to expand.

Furthermore, Dr. Okuno states, “Many cardiologists are highly skilled in catheter procedures. With training in musculoskeletal anatomy and about three months of specialized instruction, they should be able to handle these procedures without any difficulties.” In the future, we may see more facilities where, if only provided a catheterization lab, cardiology departments handle both PCI and musculoskeletal catheter procedures as part of a multipurpose approach.

In this way, institutional support and international technical exchange are the two driving forces behind the spread of this treatment. As TAME is a new treatment developed in Japan, there are also high expectations for its domestic adoption.

Significance from QOL and Healthcare Economics Perspectives

Musculoskeletal diseases significantly impair patients’ quality of life and impose substantial costs on healthcare economics. “Musculoskeletal diseases, particularly osteoarthritis, demand urgent countermeasures. Resolving these conditions, which consume vast medical resources, could pave the way for substantial healthcare cost reductions,” urges Dr. Okuno.

Furthermore, musculoskeletal disorders are a major factor that affects healthy life expectancy. Their impact on other ailments, such as accelerating dementia due to walking difficulties, cannot be overlooked. Widespread adoption of this treatment will promote the creation of an ecosystem where healthcare, lifestyle support, system design, and technological innovation collaborate. This will lead to the realization of a sustainable healthcare model that achieves both improvement of QOL and reduction of healthcare costs.

Dr. Okuno emphasizes, “Musculoskeletal disorders are an area where treatment development should be actively pursued.” Until now, options have largely been symptomatic treatments targeting pain, the primary symptoms. However, minimally invasive and highly effective musculoskeletal catheter treatments appear truly blessing to patients. Moreover, the therapeutic effects are long-lasting.

Patient demand for information is high. Despite Okuno Clinic’s is based in the Kanto region, patients

continue to visit from distant locations like Hokkaido and Kyushu, relying on information disseminated through the clinic's SNS and YouTube channels. "We yearn for expanding our clinic nationwide to reduce patients' travel burdens," Dr. Okuno states, expressing a positive outlook on the clinic's expansion in Japan.

Vascular Imaging System Supporting Musculoskeletal Catheterization

Okuno Clinic has introduced Shimadzu Corporation's "Trinias unity series" angiography system in 4 of its 10 group facilities, with 7 years of usage experience since its initial introduction in 2018. Dr. Okuno praises Trinias, stating, "Its high visibility of fluoroscopic images and the SCORE RSM function—which allows real-time, three-dimensional visualization of vascular structures while moving the C-arm—make it an effective device for assessing vascular pathways around joints."

Future Outlook: Hosting International Conferences and Raising Awareness

Looking ahead, the inaugural international conference "VENTI (Vascular Embolization for Non-Tumor Inflammation)" will be held in Tokyo on November 7-8, 2025. VENTI is an international conference planned and launched by Dr. Okuno and his Australian physician friend, Gerard Goh, MBBS. As of September 25th, registrations exceeded 250 participants. "Currently, 50 Japanese physicians have been registered, but the majority of participants are from overseas. This clearly demonstrates the high level of international interest in this treatment method. "Through these activities, we aim to explore global recognition and adoption," stated Dr. Okuno. Within Japan, study groups on musculoskeletal catheterization techniques for Japanese physicians have been also held, with an increasing number of doctors and facilities endorsing this treatment approach. "Gaining recognition through these activities is extremely important," Dr. Okuno passionately emphasizes.

In conclusion

TAME is an innovative medical technology that offers new treatment options for musculoskeletal disorders, aiming to extend healthy life expectancy while reducing healthcare costs. This minimally invasive catheter-based treatment for inflammatory lesions is expected to be utilized beyond orthopedics in many medical departments, attracting growing international academic interest.

It is expected that this treatment method will establish itself as a standard medical practice, through insurance coverage in future, national and international technology disseminations, and increased awareness through activities in academic societies.

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