Triglyceride deposit cardiomyovasculopathy –Diagnosis and possible treatment of this novel rare disease entity-

新規疾患概念　中性脂肪蓄積心筋血管症の診断と治療法開発

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中性脂肪蓄積心筋血管症 (Triglyceride deposit cardiomyovasculopathy, TGCV)は、2008年、我々が心臓移植待機症例から見出した新規疾患単位である (N Engl J Med. 2008)(ORPHA code: 565612)。TGCVでは、血管平滑筋細胞、心筋細胞などにおいてTG蓄積による脂肪毒性とエネルギー源である長鎖脂肪酸が供給されないためのエネルギー不全が生じる。
患者は、成人発症、治療抵抗性の心不全、びまん性のTG蓄積型動脈硬化を伴う冠動脈疾患に悩む。
最新の累積診断数は336例、内　58例が既に死亡している。本講演では、厚生労働省や日本医療開発研究機構の難病事業として行ってきたTGCV診断基準2020の策定や2020年に先駆け指定医薬品となったTGCV治療薬　CNT-01(薬生薬審発　0619第1号)のアカデミア開発について述べる。

Triglyceride deposit cardiomyovasculopathy (TGCV) is a novel rare disease entity we found in Japanese patients with heart failure requiring cardiac transplantation (N Engl J Med. 2008). In TGCV, the defective intracellular lipolysis results in TG deposition and energy failure due to deficiency of long chain fatty acid, a major energy source of cardiomyocytes and vascular smooth muscle cells. TGCV patients suffer from adult-onset heart failure with cardiomyocyte steatosis and diffuse narrowing coronary artery disease with TG deposition which is resistant to standard remedies including cholesterol-lowering therapy and percutaneous coronary intervention with drug-eluting stents. Since 2009, we launched the Japan TGCV study group in order to develop diagnostic criteria and specific treatments, supported by research grants for rare diseases from the Ministry of Health, Labour, and Welfare (MHLW) of Japan, and the Japan Agency of Medical Research and Development. In 2019, TGCV was encoded as a new orphan disease in the Orphanet (ORPHA code: 565612). The cumulative patient number so far diagnosed in Japan is 336. Fifty-eight of them have already died, indicating high risk profile. As similar to those with other orphan diseases, TGCV patients have been suffering from the unawareness, un-diagnosis, and delayed diagnosis. In this lecture, we present the diagnostic criteria 2020 of TGCV to facilitate the diagnosis inside and outside Japan and academia-initiated development for a drug for TGCV (coded as CNT-01), which was recently assigned as a pioneering drug through “SAKIGAKE Designation System” of MHLW. We look forward to global collaboration to save TGCV patients.