Smoking Is a Disease and Smokers Are Patients

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The Large Numbers of Smokers Throughout Japan and the World and the Incredible Health Injury

At present, there is a large number of smokers throughout the world, with similar incidences in Japan and Western countries (22% in Japan and 20% in USA in 2008). However, the incidence among males is substantially higher in Japan (37%) than in the USA (22%), while it is lower among females (9% in Japan vs 17% in the USA). Thus, smoking is primarily a problem among males in Japan.

According to the World Health Organization (WHO), smoking is the single most preventable cause of death in the world today. This year, smoking will kill more than 5.4 million people worldwide (130,000 in Japan), and by 2030, the death toll will exceed 8 million a year. Unless urgent action is taken, smoking could kill 1 billion people during this century; that is 10 times more than the 100 million killed in the 20th century. The main causes of death from smoking are coronary heart disease, stroke, cancers and COPD. At present, death rates are increasing in developing countries, such as China and India, as well as in Japan, while they are declining in Western countries such as the USA and Britain.

Smoking and Cardiovascular Disease—The Pathogenesis

Smoking is a major risk factor for cardiovascular disease including myocardial infarction, vasospastic angina, arteriosclerosis obliterans, and the coexistence of smoking and other risk factors such as hypertension worsens the risk, while smoking cessation reduces the excess risk by 35–50% in 2 years, and is completely gone in 10–15 years. Therefore, the treatment of smoking is the standard of care for cardiovascular risk reduction. The main mechanism of cardiovascular injury by acute and chronic smoking is considered to be the nicotine-induced dysfunction and damage of vascular endothelial cells via increasing oxidative stress and the impairment of dilatation. In addition, smoking increases the release of norepinephrine and epinephrine. The potential vasoconstrictive effects and endothelial damage play an important role as the pathogenesis on smoking-dependent arteriosclerosis and/or plaque rupture with thrombi.

Anti-Smoking Programs Sponsored by the Japanese Government and Japanese Circulation Society (JCS)

The first Japanese anti-smoking program, the Kenko Nippon 21 project, started in 2000. During the next year, the JCS formed the first Anti-Smoking Promotion Committee. Thus, the anti-smoking movement sponsored by the Japanese government and the JCS came later than, and has moved slower than, similar programs in the West. In the USA, for example, an active movement has been in place for over 30 years.

The Anti-Smoking Promotion Committee of the JCS published its Anti-Smoking Declaration in 2002. In it, the JCS, as the leading professional association for cardiovascular specialists in Japan, declares that it will vigorously fight against smoking by working to ban smoking in public facilities, by encouraging smoking cessation, and by preventing exposure to second-hand smoke. Among medical institutions recognized by the JCS, for example, the percentage of hospitals banning smoking in all areas was 0% in 2002 but had increased to 60% by 2009. And, whereas 24% of hospitals had a smoking cessation clinic in 2002, this had increased to 52% by 2009. Moreover, the prevalence of smoking among Japanese physicians in circulation-related fields had declined from 14% of men and 13% of women in 2002 to 9% of men and 9% of women in 2009. Still, these incidences remain higher than among cardiologists in the USA.

One of the goals of the Health Promotion Project that started in 2003 was the establishment of a ban on second-hand smoke, which is regulated much more loosely in Japan than in Western countries. In 2005, the Japanese government signed off on The Framework Convention on Tobacco Control (FCTC) sponsored by the WHO. The Japanese Ministry of Finance improved the warning statement on tobacco packages, and Smoking Cessation Guidelines were established by the 9 smoking-related medical societies in Japan. Beginning in 2006, treatment for nicotine addiction was covered by medical insurance, and nicotine replacement therapy became available at many hospitals. In 2008, varenicline became available for clinical use under the Japanese medical insurance system. Unfortunately, there are serious limitations to the insured therapy for nicotine dependency in Japan, and they include: (1) most Japanese (67%) do not agree that smoking is a disease; (2) most young smokers are rejected from the program because they do not reach a score of more than 200 in the Brinkman index (the number of cigarettes/day × number of years smoking); (3) the therapy cannot be started in patients during hospitalization; (4) the duration of treatment is limited to within 12 weeks; and (5) only 14% of hospitals offer anti-smoking therapy. In Japan, therefore, only 0.3% of smokers are covered under the insured anti-smoking therapy, and the rate of long-term success among smokers treated under the insured therapy is only one-third.
At present, Japan remains as a developing country with respect to these programs, especially in the area of second-hand smoke. Tobacco is the only legal consumer product that harms everyone exposed to it, and it kills up to half of those who use it as intended. Yet the Japanese government controls the production and sale of tobacco through laws protecting the Tobacco industry, and it holds more than half of the stock in the tobacco company, JT, which is an obvious conflict of interest and a clear violation of the FCTC. It is also noteworthy that the cost of the damage caused by smoking is approximately 2 times greater than the revenue generated from the sale of smoking products. It is therefore very important to promote anti-smoking programs, and we must act now.

No-Smoking Legislation and Reduction of Acute Coronary Syndrome (ACS)
Although second-hand smoke is a known risk factor for coronary heart disease and lung cancer, the degree of risk is low (approximately 1.2–2.0), as compared to the risk of active smoking and at one time, it was uncertain whether preventing exposure to second-hand smoke would reduce the incidence of various smoking-related diseases. Since 2004, however, remarkable findings have shown that protection from exposure to second-hand smoke achieved through no-smoking legislation clearly reduced the number of hospitalizations for ACS in Western countries. For example, Pell et al. recently showed in a reliable prospective study that reducing exposure to second-hand smoke through a no-smoking legislation reduced the incidence of ACS by 17% in Scotland. This included a 21% reduction among non-smokers and even a 14% reduction among smokers. Moreover, the reduction in ACS was first seen almost immediately after passage of the no-smoking legislation, suggesting the mechanism involved direct protection from plaque rupture and/or coronary artery spasm, rather than the protection from chronic progression in coronary atherosclerosis.

Regrettably, no similar studies have been done in Japan. Notably, however, Kanagawa has become the first prefecture in Japan to pass a no-smoking ordinance that covers public facilities. This ordinance will go into effect in April 2010, and we have already initiated a study comparing the rates of ACS in Yokohama and Yokosuga before and after the no-smoking legislation.

Varenicline vs Nicotine Patch Replacement Therapies
There are 2 types of drug treatment for nicotine addiction covered by the medical insurance system in Japan: nicotine replacement therapy and varenicline therapy. Varenicline is a newly synthesized and orally administered small molecule that binds to the α4/β2 nicotine acetylcholine receptor, where it acts as a partial agonist. It will be clinically important to compare the effects of these 2 therapies in the future, as there is currently little data about the from Japan. Tsukahara et al. recently followed a small group of Japanese adult smokers (total 28 smokers: n=16 in the varenicline group; n=16 in a nicotine patch group) for 24 weeks in a head-to-head randomized controlled open trial comparing varenicline with nicotine patch treatment for the cessation of smoking. The study showed no significant difference in the smoking-abstinence rates or total withdrawal symptom scores. This is in contrast to previous reports from Western countries, which show the smoking-abstinence rate to be higher with varenicline.

Tsukahara et al. also observed adverse side-effects associated with gastrointestinal disorders more often with varenicline than nicotine patch replacement (14 cases vs 1 case) treatment, but the incidence of skin allergy was lower with varenicline (0 cases vs 9 cases), which confirmed earlier findings. This suggests that treatment selection should depend on the patient’s request and should strike a balance between the desired acuteness of smoking cessation and the potential withdrawal symptoms or side effects, as detailed in the paper. Moreover, the sample size used in the study by Tsukahara et al. was very small. A larger scale trial with careful long-term monitoring including the psychiatric side effects would seem warranted in Japan.

Conclusion
It is important that everyone, including smokers, non-smokers, medical doctors, government and the general population, should all clearly recognize that smoking is a disease and that smokers are patients deserving of treatment. The long-term management of smoking is essential, as in the standard treatments for hypertension, hyperlipidemia, diabetes mellitus and metabolic syndrome.

References