Lessons From Ramazzini for Occupational Health in the Asia-Pacific Region

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The father of modern occupational medicine, an important branch of public health, was Bernadino Ramazzini. He was born in northern Italy in 1633 and lived a long and productive life dying 300 years ago in 1714.1,2 He studied medicine at the University of Parma where he became interested in disease related to a worker’s specific occupation. He was appointed to a chair at the University of Modena, but it was not until the age of 67, when most of his colleagues had already passed on, that he was appointed professor of medicine at Padua. The University of Padua is one of the oldest universities in Europe and has retained its reputation for excellence and is currently ranked first among Italian universities.

Ramazzini’s book De Morbis Artificum Diatriba (Diseases of Workers) was first published in Modena in 1700 and was followed by a second edition from Padua after his appointment there in 1713. The first English language edition was published only 5 years after the initial Modena publication. His book on occupational diseases included chapters on the health hazards of chemicals, dust, metals, repetitive movements, and other musculoskeletal problems. In the work related problems of workers in 52 occupations were described. His book became the standard text for occupational medicine throughout Europe. He taught that physicians should add questions about their patients’ occupations to the standard list of questions that had been handed down from the time of Hippocrates. Ramazzini also laid the foundation for the development of modern public health as a social reform movement by describing the dangerous and degrading conditions in which laborers were required to work.

He also practiced clinical medicine and was a strong advocate for the use of quinine, derived from the bark of the cinchona tree, in the treatment of malaria. At that time, malaria was common across southern Europe and of course was the scourge of those who ventured into tropical areas. Its prevention was impossible as there was no knowledge of its etiology. Ramazzini also described an increase in breast cancer in nuns compared with married women and thought that it was because of an unnatural lack of sexual intercourse. Modern epidemiology confirms the lower rate of breast cancer following pregnancy and of course with duration of lactation.3

Ramazzini was the first to describe many occupational diseases, including this description of repetitive strain injury, a condition that affects many factory workers in Asia:

The maladies that afflict the clerks arise from three causes: First, constant sitting, secondly the incessant movement of the hand and always in the same direction, thirdly the strain on the mind from the effort not to disfigure the books by errors or cause loss to their employers when they add, subtract,

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or do other sums in arithmetic. Incessant driving of the pen over paper causes intense fatigue of the hand and the whole arm because of the continuous and almost tonic strain on the muscles and tendons, which in course of time results in failure of power in the right hand.4

The name of Ramazzini is remembered in several ways in our region. The importance of his work is taught to all medical students and trainee specialists in occupational medicine. The Collegium Ramazzini is an independent learned academy of 180 internationally renowned experts in the fields of occupational and environmental health. The mission of the Collegium Ramazzini is to advance the study of occupational and environmental health issues. It seeks to translate to legislators, regulators and other decision makers the policy implications of scientific findings. The goal of the Collegium Ramazzini is to work toward solutions of occupational and environmental health problems.5 There are a number of fellows from APACPH member countries. Topics addressed by the Collegium include asbestos, lead and occupational cancer to name but few.

The work of Ramazzini is honored at the WHO Collaborating Centre for Occupational Health at the University of Occupational and Environmental Health (UOEH), Kitakyushu, Japan. In the entrance foyer is a statue of Bernadino Ramazzini and nearby in a sealed cabinet is an original edition of De Morbis Artificum Diatriba. Students in this medical college learn under the gaze of the marble bust of the master and cannot help but remember the importance of occupation in etiology and of course in management of the condition.

Ramazzini did not refer to the dangers of asbestos, but referred to the dangers of exposure to dust, “would gradually prove fatal to stoncutters who took no precautions.” A major occupational hazard in Asia that needs a lot more study and remediation is the hazard caused by asbestos. In 1999 and again in 2010 the Collegium Ramazzini issued statements calling for a complete ban on the use of all asbestos.6 Despite its toxicity, asbestos is still being mined and used for industrial purposes and Asia uses 60% of world production. The rate of lung cancer in males in China has increased 6-fold from 7.13 to 41.43 per 100 000 in the past 30 years.7 While this is partly due to the increase in smoking, a substantial part is due to asbestos exposure. Exposure to asbestos from mining or in manufacturing is still a far too common occurrence in our region.

Toxicity from the use of lead was described as long ago as in the time of Hippocrates. Lead was included in his treatise by Ramazzini because of its toxicity. Large quantities of lead are being processed and used in manufacturing in our region exposing workers to the risk of toxicity.8 One major hazard is to workers who are involved in recycling used motor vehicle batteries and in our region, children as well as the industrial workers are exposed to this hazard.9-11 Food crops grown in the vicinity of a lead mine bioconcentrate heavy minerals and can result in a substantial increase in consumption of lead.12 Western countries often export potential pollution to Asia, for example, by sending lead ore to China for refining, a process that often produces considerable contamination close to major cities.

Child labor remains a challenge in the Asia-Pacific region. Children are far more susceptible to occupational diseases.13 A survey of children who were employed found a high prevalence of work-related injuries and most of the children were required to work in hazardous environments.14 In some Asian countries, children working in the agricultural sectors are also exposed to pesticides and other hazardous environmental pollutants. Furthermore, the exposure of mothers to pesticides during their pregnancy may result in neurodevelopment problems in their infants.15

There are many lessons from Ramazzini that are still relevant to public health in modern Asia. Ramazzini described the broad scope of occupational health and emphasized the need to include occupation in the history of every patient. He also discussed the impact of occupation on the young and the family. Many of the conditions he described, including lead contamination and repetition strain injury, are still relevant to modern Asia.
We also record the passing of Professor Tony McMichael who died in Australia recently at the age of 71 years. Tony contributed as author and was also frequently cited in articles in this journal. He was a passionate advocate for public health and the environment and the impact of climate change who held chairs in Adelaide, London, and Canberra. In a recent interview, he discussed the impact of climate change on health. He will be sadly missed as a leading world advocate for the importance of environment and occupation on health.

In this month’s issue of the journal, we present a range of articles with occupational health as the main theme. They highlight the need to keep occupational health as a major component of public health education. Among the hazards discussed are exposure to noise, air pollution, and agrochemicals. We look forward to receiving more papers to update occupational health in the Asia-Pacific region.

References