Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Conclusion: This research, introduced the work safety culture questionnaire (WSCQ) using the IMB Model among government office workers as the first formal validation of the WSCQ.

104

Epidemiology of fine particles (PM 2.5) in Thailand: Situation in the year 2020

Kathawoot Deepreecha, Tinnakorn Suksakha, Aphisit Numklin
Health promotion and Preventive Medicine division, Royal Thai Army Department, Bangkok, Thailand

Introduction: Fine particles (pm 2.5) is a significant air pollution problem in Thailand, which affects public health. But no one has studied the epidemiology of fine particles (pm2.5) in Thailand, which can be used as a self-defense and warning guide for the general population. This study aims to investigate the epidemiology of fine particles (pm 2.5) in Thailand by study situation in the year 2020.

Method: This study used descriptive research. Secondary data were collected about ambient pm2.5 levels from the pollution control department (Air4thai website) in January to December 2020, and collected from 12 Thailand air quality station of pollution control department all over in Thailand. Descriptive statistics analyzed data.

Results: There were 105,896 data points obtained from 12 air quality stations in Thailand in January to December 2020. The average of ambient pm2.5 level in this period was 23.67 ± 15.56 (Median 17.32) μg/m3. The month of the year that has the highest pm 2.5 level is December and January.. The month of the year that has the lowest pm 2.5 level is April to May. The highest average ambient pm2.5 level air quality station is Dindaeng(Bangkok) air quality station. The lowest average ambient pm2.5 level air quality station is Narathiwat air quality station. The direction of pm2.5 level is from Narathiwat in July to MaeSai in March.

Conclusion: This study is project about the epidemiology of pm2.5, which is useful to make information to people in this period to protect themselves, and policy maker will use this data for make warning guide to people.

105

Occupational Heat Stress, Heavy Workload and Adverse Renal Health Outcomes—A Cross-Sectional Study Among Stone Quarry Workers in South India

Rekha S, Vidhya Venugopal, Latha PK
Sri Ramachandra Institute of Higher Education and Research, Department of Environmental Health Engineering, PORUR, India

Introduction: Direct sun exposures and physical exertion are crucial risk factors for Heat-Related Illnesses(HRI), and dehydration leading to Acute Kidney Injury.

Aim: The study determines the HRI and adverse renal health outcomes among stone quarry workers exposed to heat stress and heavy workload.

Materials and Methods: A two-year cross-sectional study was conducted with 211 workers in 5-stone quarries across South India using mixed methods. Wet Bulb Globe Temperature(WBGT) exposures and physiological heat strain indicators were monitored throughout the work shift. Post-shift serum creatinine was collected to calculate the estimated Glomerular Filtration Rate(eGFR).

Results: The WBGT exposure ranged between 23.0-34.1°C. 80% of workers with heavy workloads experienced HRIs that were significantly associated with the heat exposures (Adjusted Odds Ratio:2.0; 95%CI: 1.1-3.7). The heat strain indicators were above the normal limits for 63.5% of workers, which correlated well with the dehydration symptoms(30%). The prevalence of low eGFR was 22% for <90ml/min/1.73m2 and 10% for <80ml/min/1.73m2 with the odds of risk of low eGFR being 3.9 times significantly higher (95%CI: 1.2-12.7) for workers exposed to WBGTs higher than the Threshold Limit Value and heavy workload.

Conclusion: The results suggest that the risk of low eGFR is higher for stone quarry workers and that in-depth seasonal cohort studies are warranted to further strengthen the evidence that may help formulate the protective policies to avert renal health risks for a few million workers in tropical countries.

106

Occupational heat exposures, physiological responses and renal health outcomes among agricultural workers in South India

PK Latha1, Vidhya Venugopal2, Rekha Shammugam2
1 AMET University, Engineering and Technology, Chennai, India, 2 Sri Ramachandra Institute of Higher Education and research, Department of Environmental Health Engineering, Chennai, India

Introduction: Strenuous work and hot working environments are known risk factors for adverse renal health without adequate interventions for outdoor workers, like in agriculture.

Aim: To investigate the renal health implication of workers’ exposures to heat stress and physical exertion in agriculture.

Methodology: We conducted a cross-sectional survey with 470 agriculture workers between 2017-2019. We collected Wet Bulb Globe Temperatures(WBGT° C), pre- and post-shift Core Body Temperature(CBT), Urine Specific Gravity(USG), post-shift Sweat rate(Swr), and serum creatinine for calculating estimated Glomerular Filtration Rate(eGFR), in both hot and cooler seasons.

Results: Workers were exposed to an average WBGT of 28.4 ±2.5°C with more than 63% of measurements above the ACGIH-Threshold Limit Value(TLV). About 90% workers reported heat-strain symptoms and the risk was significantly higher among the heat-exposed workers (Adjusted Odds Ratio: 2.5; 95%CI:1.20-6.32). About 20% workers had CBT >1° C, 7% had Swr >1lit/hr, and 33% had USG>1.020, which was significantly associated with WBGT exposures. Dehydration was significantly associated with the type of work performed by the workers. With an 11% prevalence of reduced eGFR(<80 ml/min/1.73m2), the risk was significantly higher among workers with above TLV-WBGT exposures and heavy workload(AOR: 2.51; 95%CI: 1.002-6.32).

Conclusion: The preliminary results warrant further epidemiological investigations with stratification for various personal and exposure factors that determine the disease etiology to obtain conclusive evidence of heat and workload impacts on agricultural workers.

107

The impact of the COVID-19 pandemic on occupational morbidity in Russia

Irina Fedina1, Pavel Serebriakov2, Liudmila Saarkoppel2
1 Russian University of State Transport, Saint-Petersburg, Russia, 2 St. Petersburg State University, Saint-Petersburg, Russia
Introduction: The COVID–19 pandemic has affected the levels and structure of morbidity worldwide. The indicators of occupational morbidity in Russia are no exception.

Material and Methods: In order to identify the features of the impact of the pandemic on occupational pathology in the country, an analysis of the statistical data of the annual State reports “On the state of sanitary and epidemiological well-being of the population” has been carried out.

Results and Conclusions: In 2020 the level of occupational morbidity in the Russia was 0.78 per 10 thousand employees, which is significantly less than in the previous years. In 2011-2019 this indicator was 1.03–1.92. This is due to the fact that the COVID-19 pandemic required the involvement of reserves and the reorientation of medical services, including professional pathology centers, to combat mass cases of infection. Under these conditions, the expert work of the centers of professional pathology was suspended. Numerous cases of coronavirus infection among medical workers, including those that ended in fatal outcomes, required an examination of the connection of the facts of infection with working conditions. Occupational diseases from the influence of a biological factor for the first time took the second place in the structure of occupational pathology, reaching 20.2% and were mainly represented by cases of COVID-19 (92.6%). In 2018-2019 the share of occupational diseases from the impact of a biological factor varied from 1.73 to 1.99%. The analysis of the occupational incidence of COVID-19 in various regions of the country showed that the features of the industrials

109

Post COVID Syndrome in patients with COVID -19 : A Cross-Sectional study

Vandana Shinde 1, Mickey Master 1, R. Rajesh 2

1 Reliance Industries Ltd, Public Health, Navi Mumbai, India, 2 Reliance Industries Ltd, Group Medical Advisor, Navi Mumbai, India

Background: Long COVID is defined as the persistence of symptoms beyond 1 to 3 months after SARS-CoV-2 infection. To better understand the long-term course and etiology of symptoms we analysed data of COVID-19 patients post discharge prospectively.

Methods: A home care cell monitored COVID-19 patients post discharge. A paramedical staff interviewed the patient using the pretested questionnaire and refer the patient to doctor if required. The doctor spoke with these select cases and offered them treatment, counselling, referral to consultant/ hospital as per the need.

Results: We followed up with 4354 (2724 employees and 1630 dependents) patients for 3 months. 592 (13%) patients were hospitalized for COVID and others were under home isolation. 4108 (94%) patients did not have any symptoms post COVID and 239 (6%) were fatigue and weakness (69%), dry cough (39%) body ache (31%), fever (23%) shortness of breath (15%) etc.

Interpretation: Long COVID symptoms can persist for 1- 3months after recovery, this may lead to long absenteeism and may reduce productivity and quality of life significantly. Post COVID syndrome can also have an adverse effect on the mental health of an individual. Post COVID complications can be severe leading to hospitalization and disability. The continued assessment of patients with PCS is an important and effective step to reduce complications.

110

Occupational health and safety outcomes among municipal solid waste collectors in Grenada

Martin Forde

St. George’s University, Department of Public Health & Preventive Medicine, PO Box 7, St. George, Grenada (west Indies)