Purpose:

Tuberculosis (TB) is a global problem and a major worldwide cause of morbidity and mortality. One-third of the global population is infected with TB which may either be infectious or latent tuberculosis infection (LTBI) (WHO, 2015a). A five to 10 percent of person with LTBI will be developed to TB disease within the first five years after infection (WHO, 2015b). In 2013, one of the second year nursing students in this study was diagnosed with active TB. Moreover, several nursing students stay in the same dormitory. Therefore the tuberculin skin test (TST) was conducted to screen for latent tuberculosis infection among nursing students in Nursing College. The purpose of this study is to determine the prevalence rate of latent tuberculosis infection among nursing students in Nursing College.

Methods:

A cross-sectional study was conducted from October 2013 to April 2014 at a rural nursing college in Thailand. All of four year of nursing students who practice in nursing practicum and non-practice 412 out of 421 (98.34%) participants were recruited for being tested for latent tuberculosis infection with the Mantoux test with Purified Protein Derivate (PPD) 0.1 milliliter (ml). The test was measured by experienced staff after 48 to 72 hours after performed PPD. The result skin reaction is between 10 and 14 mm was considered to be positive and a reaction of 15 mm or more was considered to be strongly positive. All enrolled students were required to provide written informed consent for this study. The study was approved by the Ethics Committee of Nursing College Review Board. Additional chest radiography, sputum for AFB, and chest CT scan were carried out with the participants who show a positive result of 15 mm or more (John A. Painter et al., 2013). Descriptive statistics such as frequency, percentage, and Odds Ratio were used for data analysis. Chi square test was computed for significant testing.

Results:

The result showed that 103 participants (25%) had a positive with TST 10 mm or more. The participants who had practice in hospital were 2.78 time more likely to be infected than those who had non-practice with significant difference (p=0.000). The results was confirmed with the Odds Ratio (OR=2.78, 95%CI =1.92, 14.76). In addition, 29 participants (7%) had a strongly positive with TST 15 mm or more. The participants who had practice in hospital were 7.95 time more likely to be infected than those who had non-practice with significant difference (p=0.001). This also clearly revealed with Odds Ratio (OR=7.95, 95%CI =1.86, 33.95). Moreover, three of the participants who had shown a positive result with TST 15 mm or more, and confirmed with chest radiography, sputum for AFB, and chest CT scan had been diagnosed with pulmonary tuberculosis and were treated with DOTS. In a four-year study conducted by Irma Casas et al. (2013) found that an incidence rate of LTBI at 15.5% and annual incidence rate of LTBI in HCWs is 5.8% in low income countries.

Conclusion:

LTBI screening of nursing students benefits an early diagnosis and preventive treatment to prevent spreading epidemic of TB. According to a new era of global TB monitoring, in the period 2016-2035, WHO's Stop TB strategy had been replaced by the WHO's End TB strategy along with the Sustainable Development Golds (SDGs) which has the end date of 2030. SDG3 is “Ensure healthy lives and promote
well-being for all at all ages” and target 3.3 “By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases” (WHO, 2016). Christain Napoli et al. (2017) stated that TST is easy to use and not expensive. Therefore TST is the appropriate tool to detect LTBI in high-TB burden countries with BCG vaccination, which has the TB incidence greater than 100 per 100,000 population (Thailand=172).

Limitations: QuantiFeron® is better than TST to detect LTBI in high-TB burden countries (John A. Painter et al., 2013). TST is available inexpensively in Thailand. Moreover, participants who had positive with TST 15 mm or more had been confirmed to exclude active TB with investigations according to national guidelines.

Title:
Screening for Latent Tuberculosis Infection by Tuberculin Skin Test Among Nursing Students in Thailand

Keywords:
Latent Tuberculosis Infection, Nursing students and Tuberculin skin test

References:


Abstract Summary:
One-third of the world’s population is infected with Tuberculosis. Healthcare workers are high risk group to infect with TB. Moreover, the progression from LTBI to active TB is between five to 10 percent during five years. An LTBI screening is a benefit for early diagnosis and end epidemic of TB.

Content Outline:

- Background:

- Purpose:

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