

## CHAPTER II

### LITERATURE REVIEWS

Cervical carcinoma is a significant contributor to cancer-related morbidity and mortality worldwide. The role of human papillomavirus (HPV) in the development of preinvasive and invasive cervical lesions is well established. (1) Case-control studies, case series, and prevalence surveys have unequivocally shown that HPV DNA can be detected in adequate specimens of cervical cancer in 90–100% of cases, comparing with a prevalence of 5–20% in cervical specimens from general population (2).

Liquid-based technology was developed to address the following five major limitations of conventional cytology, including failure to capture the entire specimen obtained from the patient, inadequate specimen fixation, nonrandom distribution of abnormal cells in the sample, obscuring elements, and technical variability in the quality of the smear (3). Liquid-based techniques is suitable for cervical cytology screening in developing countries because of the ease of preparation, high correlation between results obtained on conventional Papanicolaou smears, and near perfect interobserver reproducibility (4). Studies demonstrate a statistically significant improvement in correlation between the liquid-based diagnosis and biopsy results when compared with conventional cytology. Liquid-based cytology detected more lesions of CIN1 or more (relative sensitivity=1.68, 95%CI=1.40-2.02), with a larger increase among women aged 25 to 34 ( $P$  for heterogeneity = 0.0006) (5). Liquid-based thin-layer technology has proven superior to conventional cytology for the diagnosis of adenocarcinoma (3).

HPV high risk detection test are needed when ASCUS is diagnosed on Pap test. The risk of progression to cervical cancer depends on the HPV genotype and three HPV types (HPV16, 18 and 45) are found in 77.4% of the cervical cancer (6). The authors found HPV16 and/or 18 in 64.4% of cervical squamous cell carcinoma cases from Chiang Mai University Hospital, Thailand (7). Human papillomavirus testing using molecular methods in liquid based cytology specimens is useful as an adjunct to cervical screening by cytology (8).

ThinPrep Pap test and Digene Hybrid Capture 2 (HC2) test have been used at Gynecologic Pathology Unit, Chiang Mai University Hospital since February 2010. The results of the tests done on service in the year 2010 were analyzed. The objectives of this study were to evaluate the prevalence of high-risk type HPV infection (HR-HPV) in correlation with the cervical cytology results of ThinPrep Pap test, and to examine the interobserver agreement of ThinPrep cytological interpretation.