

Treatment of cervical intraepithelial lesions

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Abstract

Precancerous cervical lesions precede the development of invasive cervical cancer by 10–20 years, making cervical cancer preventable if these lesions are detected and effectively treated. Treatment has evolved in the last few decades and now includes ablative options that can be performed in lower-resource settings where surgical excision is not feasible or routinely available. Gas-based cryotherapy, which freezes cervical tissue to induce localized necrosis, is the most commonly used ablative treatment. However, its implementation in low-resource settings is difficult because the refrigerant gas can be difficult to procure and transport, and is expensive. New cryotherapy devices that do not require an external supply of gas appear promising. Thermal coagulation, which burns cervical tissue to induce necrosis, has become more widely available in the last few years owing to its portability and the feasibility of using battery-powered devices. These two ablative treatments successfully eradicate 75%–85% of high-grade cervical lesions and have minor adverse effects.

KEYWORDS

Cervical precancer; Cryotherapy; Low- and middle-income country; Thermal coagulation; Treatment

1 | INTRODUCTION

Although cervical cancer is preventable, more than half a million women around the world develop this disease every year, and around 270 000 die.¹ The main reasons for these unnecessary deaths are the lack of screening, management, and treatment for women at the target age for secondary prevention in many low- and middle-income countries (LMICs). In high-income countries, effective screening programs based on cervical cytology (Pap smear) resulted in a dramatic decrease in cases of cervical cancer, but these have not been established in low-resource areas because of inadequate infrastructure and insufficient numbers of skilled providers. Currently, there are several newer screening options for detecting precancerous lesions of the cervix.² However, there will be no impact on the burden of disease if screen-positive women do not receive care, including effective treatment for precancerous cervical lesions.³

Today there is a better understanding of the natural history of human papillomavirus (HPV) infection and cervical cancer. Virtually all cases of cervical cancer are associated with chronic infection by carcinogenic HPV genotypes, which leads to the development of precancer in the epithelium of the cervix.⁴ Lesions designated as cervical intraepithelial neoplasia (CIN) grade 3 (CIN 3) (formerly termed carcinoma in situ) and adenocarcinoma in situ (AIS) precede the development of invasive cervical cancer by 10–20 years and are the best proxies for cancer risk. CIN 3 lesions span at least two-thirds of the thickness of the epithelium, which is approximately 0.2 mm thick,⁵ although involutions forming the cervical glands cause the tissue to be much thicker. Invasive cervical cancer develops as the result of the intrusion of abnormal cells through the basement membrane of the epithelium into the underlying stroma. Approximately one-third of CIN 3, if left untreated, will become invasive cervical cancer over a 30-year period.⁶ The risk of invasive

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