CERVICAL CANCER 1: AN OVERVIEW OF SCREENING AND DIAGNOSIS

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ABSTRACT Jefferies, H. (2008) Cervical cancer 1: an overview of screening and diagnosis. Nursing Times; 104: 44, 26–27. This is a two-part unit on cervical cancer. The first part outlines its incidence and predisposing risk factors, together with the effect of the human papilloma virus. Precancerous changes to the cervix are described, as well as the colposcopy department’s function, the new vaccination programme and types of cervical cancer.

INTRODUCTION
In the UK in 2004, 2,726 new cases of cervical cancer were diagnosed, accounting for around 2% of all female cancers. Women in the 30–44 years age group are most at risk, and approximately 20 women die each week from this disease in the UK (Cancer Research UK, 2005). Clinical studies have shown that in 99.7% of cases, cervical cancer is caused by the human papilloma virus (HPV) (Muñoz, 2000; Walboomers et al, 1999), an infection acquired through sexual activity. There are many strains of HPV but those most associated with development of cancer are subtypes 16, 18, 31, 33 and 45. Other predisposing risk factors include:
- Younger age at first sexual intercourse;
- Higher number of sexual partners;
- Immuno-suppression (for example HIV) and systemic lupus erythematosus (SLE);
- Smoking;
- Less affluent lifestyle;
- Poor hygiene;
- Prolonged use of oral contraceptives.

The presenting symptoms of cervical cancer are:
- Abnormal bleeding, for example inter-menstrual and post-coital bleeding;
- offensive discharge;
- Pain during intercourse;
- Vaginal bleeding after menopause;
- Back pain.

SCREENING AND DIAGNOSIS
Cervical cancer is a unique cancer as it is known to have a long pre-invasive stage (10 years or more), hence the NHS Cervical Screening Programme’s success. This allows women with cervical abnormalities known as cervical intraepithelial neoplasia (CIN) to be identified.

CIN is graded 1–3 and may develop into cancer if it is not treated. CIN 1 is low grade and affects less than one-third full thickness of the cervical epithelium. CIN 2 is moderate and affects half to two-thirds full thickness of the epithelial layer and CIN 3 is high grade and affects two-thirds to full thickness.

Women with abnormal smears are referred to a hospital-based colposcopy department for further investigations and treatment. Some parts of the UK, for example the pan-Birmingham network, have a direct referral policy whereby women are referred directly to the colposcopy department when an abnormality is detected by the cytology laboratory. An urgent appointment is made and the woman and her GP are informed at the same time. This ensures the patient pathway is streamlined, reducing delay.

National government quality assurance guidelines stipulate that women with CIN 1 are seen within eight weeks, those with CIN 2 and 3 within four weeks, and those with possible invasive cancer within two weeks. A recent directive from the NHS West Midlands recommends that by 2010, there will be a 14-day turnaround from the date a cervical screening test is taken

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<th>TABLE 1. STAGING OF CERVICAL CANCER</th>
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Source: Lancaster and Nattress (2005)
to the date a woman receives the results.

In the colposcopy department women are examined using a colposcope, which allows close examination of the cervix through illumination and high magnification. Acetic acid is applied to the cervix and reacts with the proteins in the cells, allowing the area of abnormality to be easily identified as an aceto-white lesion. Women with low-grade changes equivalent to CIN 1 are conservatively managed with observation, possible diagnostic biopsies and regular follow-up with cervical cytology. Those with high-grade changes equivalent to CIN 2 and 3 require active treatment, and the area of abnormal tissue is removed using diathermy loop excision, cone biopsy or cold coagulation (depending on histology and clinical indications). This may be performed as an outpatient procedure.

Screening success

The age range for the cervical screening programme is 25–64. Between 1988 and 1997, incidence of cervical cancer in England and Wales fell by 42% (NHS Cancer Screening Programmes, 2004). Although women are invited to attend for a smear every 3–5 years depending on age, 2004 figures showed that only 80.6% of eligible women in England had been screened at least once in the previous five years (DH, 2004).

The reasons many women cite for not attending are anxiety and experiencing pain during a previous procedure. Others may be unable to access the screening programme, for example the travelling community and those with learning disabilities. Screening is also avoided by women in some cultures in which it is deemed unacceptable to expose the genitalia or discuss sexual health.

VACCINATION

The government recently commenced an immunisation programme for girls aged 12–13 to be vaccinated against HPV using the Cervarix vaccine. Cervarix is a bivalent vaccine providing protection against HPV subtypes 16 and 18. This age group was chosen as it is known that 40% of 15-year-olds are sexually active and therefore at risk of acquiring the infection, and therefore girls in a younger age group need to be immunised. Two further vaccinations are given at two and six months after the first. However, the immunisation programme raises various questions and issues:

- How long does immunity against HPV last?
- Will a ‘booster’ vaccine be required?
- Should we only vaccinate girls? For example, in Austria boys are vaccinated as well as girls.
- Cervarix only protects against HPV subtypes 16 and 18, and not 6 and 11, which are associated with 90% of genital warts.

TYPES OF CERVICAL CANCER

Cancer of the cervix is confirmed when an area of cervical tissue is examined in the histology department. There are several types of cervical cancer. Squamous cell carcinomas comprise 80–85% while adenocarcinomas account for 15%. Squamous carcinomas develop from the cells covering the outer surface of the cervix at the top of the vagina, while adenocarcinomas develop from the glandular cells lining the cervical canal (endocervix). As adenocarcinomas start in the cervical canal, they can be more difficult to detect with cervical screening. Other less common types are adenosquamous carcinomas, clear cell, neuro-endocrine and small cell carcinomas.

Tumours are also graded 1–3. Grade 1 tumours are well-differentiated and tend to be slow-growing, grade 2 are moderately differentiated while grade 3 are poorly differentiated and more aggressive. The type of tumour gives an indication of the way the cancer will behave and likely response to treatment, with grade 3 tumours being less responsive and more likely to recur.

The other important factor to consider is the stage of the disease. Staging of cervical cancer is carried out according to the Federation of International Gynecology Oncologists (FIGO). It involves an examination under anaesthetic to examine the vagina, rectum and bladder. Radiological investigations include an MRI scan of the abdomen and pelvis and an X-ray or CT scan of the chest. These tests determine the extent of the disease and allow the correct treatment to be given. Staging also offers insight into the prognosis and allows women with the same stage and type of cancer to be compared in different parts of the world.

PATTERNS OF SPREAD

Cervical cancer spreads through direct invasion to the surrounding tissues into the vagina, uterus and parametrial tissues. The bladder, ureters and rectum may also be involved in advanced cases. It may also spread via the lymphatic system to the lymph nodes, for example the pelvic and para-aortic nodes. Cervical cancer is divided into four stages according to size of tumour and the extent to which it has spread (Table 1).

- Part 2 of this unit, to be published next week, examines treatment and side-effects.