

RESEARCH ARTICLE

Does Cervical Screening in Young Women Aged 20-25 Years Lead to Unnecessary and Harmful Interventions?

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Abstract

Background: Cervical human papillomavirus (HPV) infection among young women (20-25 years of age) is common and normally transient. There are growing concerns that referral to a colposcopy clinic may lead to unnecessary treatment with an increased risk of obstetric complications. Therefore, the purpose of this study was to determine the level of intervention for cervical abnormalities in this age group of the Northern Ireland population. **Materials and Methods:** A review of all serial new patients under 25 years of age, who were referred to colposcopy clinics in Northern Ireland between January 1, 2009 to June 30, 2009 formed the basis of this study. **Results:** During the study period, a total of 4,767 women under 25 years of age were screened. Two-hundred-and-thirty-four (4.9%) cases were referred to the colposcopy clinics. The cervical cytology results were: high-grade abnormality in 35%, and low-grade abnormality in 31% of these cases. One-hundred-and-seventy-eight (76%) of the referred women received at least one treatment. One-hundred-and-twenty-one of 234 (51.5%) women underwent an excisional treatment with histology showing the presence of high-grade abnormalities (CIN2-3) in 52%, CIN1 in 28%, and Koilocytosis or normal tissue in 20% of this sub-group of cases. **Conclusions:** Screening women under the age of 25 years cause unnecessary referral for colposcopy. This may also result in considerable anxiety and psychosexual morbidity. It leads to an over-treatment with a potential of negative impact on the future pregnancy outcomes (including pre-term delivery, low birth weight, and pre-term premature rupture of membranes).

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Introduction

There has been growing interest in the cervical screening in recent years worldwide (Demirtas, 2013; Nalliah et al., 2015; Thaxton and Waxman, 2015). In 2003, the English National Health Service Cervical Screening Programme (NHSCSP) recommended cervical screening to young women aged 25 years and over (Luesley and Leeson, 2010). This recommendation was based on the growing evidence that cervical smear abnormalities are more common in sexually active women in this group, especially human papillomavirus (HPV) changes. Moreover, the cervical cancer prevalence among women under the age of 25 is rare (Fiander, 2008).

Studies have shown that there was no evidence that screening of women aged 22-24 years reduces the incidence of cervical cancer as compared to the age 25-29 years, thereby concluding that there was no benefit of cervical screening in this group of women (Sasieni et al., 2009). Unnecessary treatment in this group of women could lead to negative consequences on women's childbearing potentials (Kyrgiou et al., 2006). Moreover, a majority of these cervical abnormalities will regress

spontaneously if left untreated until the age of 25 years (Moscicki et al., 2004).

In Northern Ireland, the first invitation for cervical cytology screening is generally at the age of 20 years. Given the above facts and concerns, the purpose of this study was to determine the level of intervention for cervical abnormalities in this age group of women among the Northern Ireland population.

Materials and Methods

The data were collected from the National Cervical Screening Database; hence no institutional review board approval (ethical permission) and/or patient consent was necessary for this study. A review of all serial new women (n=4,767) under the age of 25 years old who were screened and a total of 234 (4.9%) cases were referred to the colposcopy clinics in Northern Ireland between January 1, 2009 to June 30, 2009 was performed. While 94% of the referred women were between the ages of 20-24 years, only <6% were under 20 years. Non-symptomatic cases were 157/234 (67.5%); whereas 69 (28.9%) cases were symptomatic, and the remaining 2.9% cases could not

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have appropriate records pertaining to their symptoms.

Information was obtained pertaining to the clinico-pathological factors from patients' medical records (both electronic and hard charts). Abstracted data including the cytological, colposcopy, histological findings, management, and routine follow-up were collected.

Results

During the study period, there were 4,767 women under 25 years of age who were screened in Northern Ireland. All the women were followed-up. Of those, 234 (4.9%) cases were referred to the colposcopy clinics, indication being abnormal cervical smear. Those cervical smear cytology revealed high-grade abnormality [cervical intraepithelial neoplasia (CIN) 2-3] in 35% of cases, and low-grade abnormality (CIN1) was found in 31% cases (Figure 1).

Of the 234 referred cases, 178 (76%) women had treatment related to the cervix. Excisional treatment in the form of Large Loop Excision of the Transformation Zone (LLETZ) was used in 52% of women, and 24% cases

had cold coagulation. In the treated women, the histology confirmed the presence of high-grade abnormalities in 52% cases, while low-grade abnormalities were noted in 28% cases. In the remaining 20% of cases, the histopathology was either normal or showed the presence of Koilocytosis features (Figure 2).

Discussion

During the period of our study, there were a significant number of young women aged 20-24 years of who underwent cervical screening in Northern Ireland. Of those who were referred to the colposcopy clinic, more than 75% cases underwent treatment to the cervix for abnormal cervical smears. This number is rather alarming and showed that the majority of these young women, when seen at the colposcopy clinic, will undergo treatment, and hence, may likely result in over-treatment for some cases. Therefore, the fundamental issue is that are we doing any good by screening this group of women and what is the impact of cervical screening on young women. Sasieni et al. (2003) in a published data from the UK audit in 2003, stated that in women aged 20-34 year, the cervical screening was less effective in preventing stage IB cervical cancer, or worse than it was in preventing cervical cancer in older women. In another study (Zappa et al., 2004), it was shown that protective period offered by the screening was shorter in younger women than the older ones following a negative cervical smear. Moreover, it was noted that women aged 20-29 years with cervical cancer were no less likely than the age-matched controls to have likely been screened (Sasieni and Castanon, 2006). In 2009, Sasieni et al confirmed the findings of the 2003 UK audit paper (based on a larger series of cases) that there is no evidence that screening of women aged 22-24 years reduces the incidence of cervical cancer at ages 25-29 years.

Although most studies showed screening young women is of no benefit; however, one case-controlled study from Australia, by Yang et al. (2008), found that screening women aged over 30 every two-years is more protective than in those aged 20-29 years.

During the period of our study, there has been no diagnosed case of cervical cancer reported among this group of women aged 22-24 years. However, the medical records of cases with invasive cancer were reviewed by Leyden et al. (2005), three-years before the diagnosis to establish the likelihood of these cases to be classified as failure to screen. The study showed that these patients (aged 40-92 years at the diagnosis) were more likely to have their diagnosis attributed to the failure to screen compared with those cases of aged 16-39 years (Leyden et al., 2005). Therefore, the conclusion by Leyden et al. (2005) was that screening is significantly less effective among younger women. The same observation was reported by Rieck et al. (2006), who reviewed the colposcopy notes of women with cervical cancer in the Wales area within the age range of 20-24 years. Over the five-year period, there were only 10 cases of cancer diagnosed in women of 20-24 years; eight out of these women were screen-detected. Notably, all the 10 cases

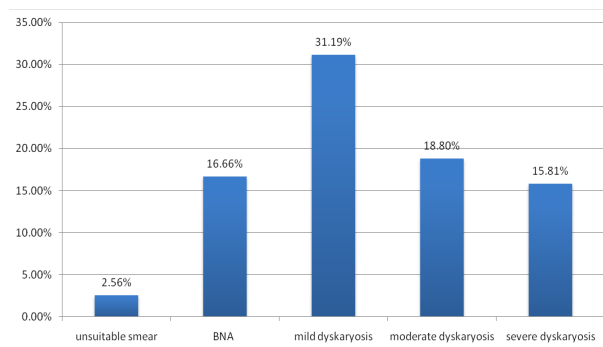


Figure 1. The Results of the Referring Cases for Cervical Smears

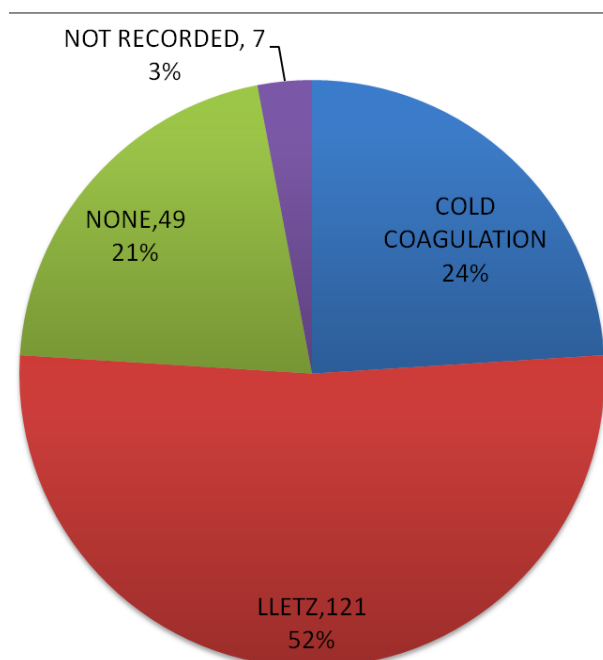


Figure 2. Pattern of the Treatment that the Patients Received

were screened previously, which means all these cases occurred despite of the screening. Interval cancers (those diagnosed following a negative cervical smear) were more likely to be in women aged 20-24 years (Rieck et al., 2006). Only in one study from the U.S., nine of the 11 cancers among the women aged 20-29 were diagnosed within the three-years of a negative smear.

In our study, there were 31% of cases with low-grade abnormality, who were referred to the colposcopy clinic. In young women of 13-22 years, only 3% of low-grade CIN progressed to high-grade disease, and the probability of regression is 61% at 12 months follow-up - and 91% at 36 months follow-up (Moscicki et al., 2004). The authors suggested that the cytological follow-up in these women was sufficient and that colposcopy should be avoided (Moscicki et al., 2004). The main purpose of the screening is to prevent cervical cancer by detecting lesions, which have a high probability of progressing to cancer. In young women, the prevalence of HPV infection and low-grade lesions is high; however, these cervical abnormalities have a high spontaneous regression rate among the women under the age of 25 years. Since there is no point in treating these abnormalities in this group of women, therefore it is pointless to subject these women to any further screening and/or colposcopy. The evidence from the TOMBOLA (Trial Of Management of Borderline and Other Low-grade Abnormal smears) study (Gray et al., 2006) has shown that younger women with low-grade cervical smear abnormalities suffer considerable anxiety and psychosexual morbidity with the cervical screening and colposcopy.

Sjoberg et al. (2007) found an increased risk of pre-term delivery after the treatment with LLETZ (Large Loop Excision of the Transformation Zone) and conization. Several publications have shown that women treated for cervical lesions prior to the childbearing age are at a relatively increased risk of pre-term delivery and peri-natal morbidity such as low birth weight (Ferenczy et al., 1995; Tan et al., 2004; Herbert et al., 2008).

Some would argue that delaying the age for screening eligibility carries a risk of CIN becoming more extensive and perhaps requiring radical excision or progressing to cancer. This will carry a negative impact on the fertility and pregnancy outcomes among those women who are in the range of 20-24 years, more than if they are treated early when CIN is not extensive (Sadler et al., 2004).

It is to be noted that the literature shows many controversies and uncertainties whether to screen and treat (or not to screen and treat) the under 25 years old women. Despite these uncertainties, the Advisory Committee on Cervical Screening (ACCS) in England recommended that not to screen the women under the age of 25 years, and that the invitation for the first cervical smear should be at 25 years or after. Our data strongly supports the notion that screening the women under 25 years of age leads to over-treatment with the strong potential for real harm to patients such as late miscarriage and pre-term delivery.

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