



Review

Role of cervical screening in older women



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ABSTRACT

Objective: To review the literature concerning the role of cervical screening in women 60 years and older.
Methods: Literature review was conducted using PubMed and the search terms cervical neoplasm, cancer, middle aged, elderly, aged, postmenopausal, cervical cytology and screening. To be included in the review, the article must have been in the English language. The search focused on publications from 2000 forward.
Results: The case control and modeling studies that addressed the role of cervical cytology screening in women 60 and older were reviewed. The outcomes of interest included: (1) the benefits of screening in terms of decrease rate of cervical cancer incidence (6 studies) and mortality (3 studies); (2) the duration of protection of the last screening test (4 studies); and (3) the harms of screening older women including false positive test results and cost.
Conclusions: Cervical cytology screening is beneficial for women over 60 years in terms of preventing the occurrence and death from cervical cancer. A negative cytology test appears to have 5 years of protection in this age group. Age of last screen with in an organized screening program may differ compared to the goals and wishes of individual women.

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1. Introduction

In 2012, Saslow [1] published guidelines from the American Cancer Society (ACS), the American Society for Colposcopy and Cervical Pathology (ASCCP) and the American Society for Clinical Pathology and Screening (ASCPG) recommending that the end date for cervical screening be age 65 if there were 3 normal cytology screening in the preceding 10 years. Women who did not meet these criteria

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needed to continue to be screened. Since there are no randomized trials of screening, these guidelines were based on consensus opinion after review of a limited number of retrospective studies and one modeling study [2]. In this paper we will review the arguments in support of this recommendation and the arguments that express concerns about this recommendation.

2. Methods

A literature review was conducted using PubMed from 2000 to 2014. The search terms included were cervical cancer (i.e., cervical neoplasms, cancer), screening (i.e., cytology) and older age (i.e., elderly, postmenopause, older, aged). The abstracts were reviewed to ensure the manuscript was in English, involved a review of cervical cytology screening data, at least one centre's cervical cancer incidence or mortality data, and women were 60 years and older. Study types of interest were case control, cohort or randomized controlled trials. The references of the manuscripts of interest were also reviewed for pertinent articles. In this paper, we will highlight the findings from the publications since 2000 but we will allude to themes identified in the literature prior to this time.

3. Results

We will start by looking at the concerns raised concerning the new guidelines. The incidence rate of cervical cancer among women of various age groups shows that there is a bimodal distribution of new cases with peaks at 30–39 and 60–69 years of age [3]. Of all new cervical cancers, 20% occurred in women 65 years old and older and these women accounted for 34% of the deaths related to cervical cancer [4]. Thus if screening decreased the risk of cervical cancer and yet there is a peak of cervical cancer in women 60–69yo, it is likely that there are either a group of women who are not getting screened, or in those getting screened, there is a problem in the accuracy of screening or other reasons to explain this high rate of cervical cancer in women 60 years and older.

We know that women who were never screened have the highest incidence rate of cervical cancer. The under or never screened populations make up 40% of the cases of cervical cancer [4]. Thus, the never or under screened population need to be screened regardless of age. However, 60% of women who get cervical cancer are screened. There are several reasons why the screening test may miss the high grade lesion and/or cancer. We know that as a woman ages, her compliance with screening decreases [5,6]. In addition, the protection that screening offers is time limited and this will be discussed in more detail later in this paper. There is also an issue related to the efficacy of screening in older women. Sawaya [7] conducted a review of 455 women with cervical cancer from 1988 to 1994 in North California on the same health insurance plan for at least 30 months. Increasing age of women with cervical cancer was associated with increasing stage of disease and increased risk of death within 3 years of diagnosis (OR 3.91, 95%CI 1.01–15.20). The cancers were interval cancers, which indicated that for those women who had been screened, the older women were less likely to be identified at risk for cancer compared to younger women. It is not clear if this is related to aspects of specimen retrieval that lead to lower test sensitivity like vaginal atrophy causing lower specimen cellularity or an inadequate sample of the transformation zone (T-zone) because as a woman ages, the T-zone is located high in the endocervical canal.

Not only is the incidence of cervical cancer higher in older women, they also have a higher mortality rate compared to younger women. Firstly, older women present with more advanced stages of cervical cancer [5,8] that have a lower 5-year survival rate compared to earlier stage disease [8]. Older women, who have not been

screened, will present with symptoms like vaginal bleeding or foul discharge. Symptoms occur with a higher stage of disease, while earlier stage disease is usually asymptomatic. In addition, older women may have senescent immunodeficiency and this leads to more aggressive cancers with poorer prognosis. Stage for stage, older women may not be treated as aggressively as younger women especially if they have co-existing co morbidities. This topic was discussed recently in this journal [9].

3.1. So if we see a higher cervical cancer incidence and mortality rates in older women, is there data showing that screening by cervical cytology decreases the incidence of cervical cancer in older women?

There is data from various jurisdictions (Finland, Sweden, USA) that show when older women (60 years and older) participate in screening, the cervical cancer incidence drops by 51% [10]–64% [11]–77% [4]. These and other studies will be reviewed below (Table 1).

A case control study was conducted in Sweden [11], which has an organized screening program (1999–2001). 1230 women with cervical cancer were age matched with 6124 controls. They were divided into three age groups for analysis 21–19, 30–65 and over 65 years old. Those who were not screened after age 65 years old had a 3.59 (95%CI 2.25–5.74) higher chance of squamous cell cervical cancer and 1.26 risk (95%CI 0.61–2.59) of non-squamous cell cervical cancer. In women 70 years and older who were screened, their risk of cancer was 0.4 (95%CI 0.2–0.5) compared to those not screened [12]. Thus in this study, screening after age 65 years old led to a decrease in both squamous and adenocarcinoma of the cervix.

A case control study was conducted in NW USA [4] within two integrated health systems. USA represents an opportunistic screening environment. This study involved 69 women with cancer and 208 age matched controls who had been in the health plan for the same duration. It suggested that screening women 55–79 years of age was associated with a 77% (95%CI 56–89) reduction in cervical cancer incidence.

A case control study from the province of Florence in Italy [13] evaluated the role of cervical cytology within 5 years in 208 women with cervical cancer and 832 age and region matched controls. For women 60–69, a cervical cytology test within the previous 5 years was protective against squamous cell cancer (OR 0.22, 95%CI 0.06–0.83).

A case control study in the UK [14] showed that when 1305 women with cervical cancer and 2532 controls were assessed, the degree of benefit of cervical cytology in women 55–69 years old was the same as for women 40–54 years old. Thus regardless of age, screening benefited women to the same magnitude.

Another case control study from the UK (1990–2008) [15] was conducted with 4012 women with cervical cancer aged 20–69 years and 7889 age and region of residence matched controls. It showed that the protective effect of screening women in 43–65 years of age was between 0.18 and 0.36 [15]. In other words, the reduction in cervical cancer incidence with cytology screening is 60% in women 40–42 years old and 80% in women 62–64 years old. The relative risk of having cervical cancer at 55–59 was 0.26 (95%CI 0.19–0.36) in women screened at age 52–53 compared with women not screened between age 50 and 54 years old. There was a similar relative risk of 0.27 (95%CI 0.17–0.43) in women screened 50–51 but not 52–54 compared with women not screened between 50 and 54 years old.

A case control study from 2 health plans in the US Pacific Northwest [16] involved 39 cervical cancer cases and 80 controls. In these women aged 55 years and older, 51% of cases and 81% of controls had had cervical screening in the prior 7 years. After adjusting for smoking, marital status and race, there was a 74% reduction in cervical cancer deaths (0.26 95%CI 0.10–0.63) in the screened group

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