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CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS AMONG SCREENED WOMEN IN BASRAH

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ABSTRACT

Background: Cervical cancer and its precursors remain significant public health concerns in low- and middle-income countries. To address this, a Cervical Cancer Screening Programme was recently launched in Basrah, Iraq. This study aimed to estimate the prevalence of cervical intraepithelial neoplasia (CIN) and cervical cancer among enrolled women and to identify associated risk factors. **Methods:** This investigation consisted of two components. The first was a cross-sectional record-based study of 506 women enrolled in the Basrah cervical cancer screening programme between September 1, 2011, and August 31, 2012. The second part was a comparative cross-sectional study involving direct interviews or telephone-based questionnaires with 251 women from the initial cohort. Data sources included clinic records and structured questionnaires designed to assess potential risk factors. **Results:** The overall prevalence of CIN was 15.8%, with CIN I and CIN II accounting for 14.8% and 1%, respectively. Prevalence was higher among women aged ≥35 years (19%) compared to those aged <25 years (10.8%). Multivariate analysis identified previous genital infection (AOR=7.187; 95% CI: 1.904–27.123), low socioeconomic status (AOR=6.722; 95% CI: 1.857–30.048), and passive smoking (AOR=2.672; 95% CI: 1.216–11.084) as significant independent risk factors. Other factors such as long marital duration, miscarriage history, and non-use of barrier contraception were initially significant but lost significance after adjustment. **Conclusion:** The study underscores a moderate prevalence of CIN in Basrah and identifies modifiable risk factors. Continued screening and further epidemiological research are essential to inform prevention strategies and reduce cervical cancer burden in Iraq.

KEYWORDS: Cervical, Squamous, intraepithelial, lesions, screened, Basrah.

INTRODUCTION

Cervical cancer is still a big health problem around the world. It is the second most common cancer and the fifth deadliest cancer in women. It affects about 16 out of every 100,000 women each year and kills about 9 out of every 100,000 women each year. This adds up to an estimated 500,000 new cases and 274,000 deaths around the world each year.[1,2] Cervical cancer is much more common in developing countries, where about 80% of new cases happen. This is mostly because screening and treatment programs are not available or are hard to get to.[3,4] On the other hand, countries that have already set up cervical cancer screening programs have seen huge drops in the number of cases and deaths. For example, in the United States, the widespread use of Pap smear screening has cut the number of cases in half compared to global rates. Over the past 50 years, the number of deaths has gone down by about 74%.[1] The UK also saw a 20% drop in cases by 2000, with the biggest drop among women aged 55 to 64. This was due to national screening efforts.[3] The number of people with cervical cancer in Iraq is going up. About 8.21 million women over the age of 15 are at risk. About 311 women get the disease each year, and 212 die from it. Cervical cancer is the 10th most common cancer in Iraqi women overall and the 7th most common cancer in women aged 15 to 44.[5] Between 2005 and 2008, uterine and cervical cancers were the second most common cancers among women in Basrah.[6] The main cause of cervical intraepithelial neoplasia (CIN) and cervical cancer is the human papillomavirus (HPV). High-risk types 16 and 18 cause about 70% of cases around the world.[7,8] But it can

take up to 20 years for HPV infection to turn into invasive carcinoma, and this process is affected by a number of cofactors, such as immunosuppression, early sexual activity, having many children, using hormonal birth control for a long time, smoking, and having a low socioeconomic status.[9,10] There isn't any national HPV data in Iraq, but data from the region show that 2.2% of women in Western Asia have cervical HPV infection.[5] In 2011, Iraq started the National Cervical Cancer Screening Programme to fight the disease. It was aimed at women aged 25–45, especially those with risk factors.[11] If these kinds of programs are done well and kept up, they could help lower the number of cervical cancer cases in Iraq, just like they have in other countries. the aim of study is to estimate the prevalence of cervical intraepithelial neoplasia and cervical cancer among women enrolled in cervical cancer screening programme in Basrah, study the association between selected risk factors and cervical neoplasia in Basrah.

METHOD

The Cervical Cancer Screening Centre at Al-Basrah Maternity and Children Hospital served as the study's site. The facility is a component of the 2011-launched Iraqi National Cervical Cancer Screening Program.[26] Al-Seef, Al-Basrah Training Centre, Al-Meshraq, Al-Nahda, and Al-Jobela were the only five primary health care (PHC) centres participating in the program at the time of the study. In addition to screening women with symptoms or risk factors, each centre was mandated by national guidelines to screen 10 randomly selected women every day for three days a week. The liquid-based cytology method was initially used to process Pap smears before switching to the conventional method. There were two sections to the study. All women who were screened between September 1, 2011, and August 31, 2012, were included in the first part of the cross-sectional, record-based study. After removing insufficient smears, 506 of the 526 women who were initially enrolled were included in the final analysis. 260 women participated in the second part of the study, which was a cross-sectional comparative analysis. They were chosen from the Al-Seef and Al-Meshraq PHC centres, which provided the greatest number of participants, as well as those who visited the hospital's consultation clinic. To find risk factors, women with cervical intraepithelial neoplasia (CIN) were compared to those with normal cytology. While part two data was gathered using structured questionnaires conducted over the phone or through in-person interviews, part one data was taken from screening centre records. Demographic information, sexual and reproductive history, use of contraceptives, smoking status, gynaecological symptoms, and history of warts or genital infections were among the variables evaluated. SPSS version 17 was used to conduct the statistical analysis. To find correlations, the chi-squared test, Fisher's exact test, and logistic regression were used. Statistical significance was defined as a p-value <0.05. Before any data was collected, ethical approval was obtained from the Basrah Directorate of Health.

RESULTS

Age: Women aged ≥35 had the highest CIN prevalence (62.9%), but age was not a statistically significant factor (p=0.13). Education: Lower education was significantly associated with higher CIN risk (OR=3.086, p=0.01). Socioeconomic Status (SES): Women with low SES had a significantly higher risk of CIN (OR=3.057, p<0.0001). Husband's Smoking: Strongly associated with CIN (OR=4.855, p<0.0001). Cigarette Quantity & Duration (Tables 3.6 & 3.7): Women whose husbands smoked ≥20 cigarettes/day or for more than 10 years showed higher CIN rates, though results were not statistically significant (p>0.4). Marital Status: No significant association found (p=0.689). As in table 1.

Table 1: Demographic, Socioeconomic, and Smoking Risk Factors for CIN.

Variable	Cases (%)	Controls (%)	Odds Ratio	95% CI	p-value
Age (15–24)	4 (5.7%)	25 (13.8%)	1*	-	0.130
Age (25–34)	22 (31.4%)	62 (34.3%)	2.218	0.694–7.090	
Age (≥35)	44 (62.9%)	94 (51.9%)	2.926	0.960–8.917	
Education: Illiterate	21 (30.0%)	35 (19.3%)	3.086	1.404–6.783	0.01
Education: Primary & Intermediate	35 (50.0%)	74 (40.9%)	1.269	0.647–2.489	
Education: Secondary+	14 (20.0%)	72 (39.8%)	1*	-	
SES: Low	43 (61.4%)	62 (34.3%)	3.057	1.727–5.410	<0.0001
SES: Middle & High	27 (38.6%)	119 (65.7%)	1*	-	
Husband Smoker	40 (57.1%)	39 (21.5%)	4.855	2.688–8.769	<0.0001
Husband Non-Smoker	30 (42.9%)	142 (78.5%)	1*	-	
Marital Status: Married	67 (95.7%)	176 (97.2%)	0.634	0.148–2.729	0.689
Marital Status: Other	3 (4.3%)	5 (2.8%)	1*	-	
Husband Cigarettes/day: <10	1 (2.5%)	2 (5.1%)	1*	-	0.915
Husband Cigarettes/day: 10–19	8 (20.0%)	8 (20.5%)	2.0	0.15–26.734	
Husband Cigarettes/day: ≥20	31 (77.5%)	29 (74.4%)	2.214	0.19–25.769	
Husband Smoking Duration: ≤10 yrs	11 (27.5%)	14 (35.9%)	1*	-	0.422
Husband Smoking Duration: >10 yrs	29 (72.5%)	25 (64.1%)	1.476	0.569–3.832	

Marriage Duration & Miscarriage: Longer marriage (>10 years) and history of miscarriage were both significantly associated with higher CIN risk (p<0.0001). Parity: Higher parity (≥5) showed increased CIN risk, but not statistically significant (p=0.288). Barrier Contraceptive Use: Associated with a protective effect—significantly lower CIN risk (OR=0.265, p=0.006). Genital Infection: Strongly associated with CIN (OR=3.384, p=0.001). Genital Warts, Intermenstrual Bleeding, Postcoital Bleeding: No significant associations were found (p-values > 0.3). as in table 2.

Table 2: Obstetric, Contraceptive, and Clinical Risk Factors for CIN.

Variable	Cases (%)	Controls (%)	Odds Ratio	95% CI	p-value
Marriage Duration: ≤10 yrs	21 (30%)	105 (58.0%)	1*	-	<0.0001
Marriage Duration: >10 yrs	49 (70%)	76 (42.0%)	3.302	1.857–5.873	
Miscarriage: No	37 (52.9%)	148 (81.8%)	1*	-	<0.0001
Miscarriage: Yes	33 (47.1%)	33 (18.2%)	3.550	1.986–6.344	
Parity: Nulliparous	2 (2.9%)	12 (6.6%)	1*	-	0.288
Parity: 1–4	30 (42.9%)	85 (46.9%)	2.117	0.468–9.579	
Parity: ≥5	38 (54.3%)	84 (46.4%)	2.714	0.610–12.060	
Barrier Contraceptive Use: Yes	5 (7.1%)	51 (28.2%)	1*	-	0.006
Barrier Contraceptive Use: No	65 (92.9%)	130 (71.8%)	0.265	0.099–0.707	
History of Genital Infection: No	52 (74.3%)	147 (81.3%)	1*	-	0.001
History of Genital Infection: Yes	18 (25.7%)	34 (18.7%)	3.384	1.700–6.733	
History of Genital Warts: No	65 (92.9%)	172 (95.6%)	1*	-	0.348
History of Genital Warts: Yes	5 (7.1%)	8 (4.4%)	1.690	0.526–5.429	
Intermenstrual Bleeding: No	56 (80.0%)	136 (75.6%)	1*	-	0.549
Intermenstrual Bleeding: Yes	14 (20.0%)	44 (24.4%)	1.285	0.649–2.541	
Postcoital Bleeding: No	64 (91.4%)	168 (93.9%)	1*	-	0.519
Postcoital Bleeding: Yes	6 (8.6%)	11 (6.1%)	1.452	0.511–4.129	

Postmenopausal bleeding, abnormal vaginal discharge, and oral/IUD contraceptive use were not significantly associated with CIN (p > 0.3). Injectable contraceptive use was significantly associated with a higher risk of CIN (OR = 7.24, p = 0.043). Duration of contraceptive use and combined oral contraceptive pills did not show a significant effect on CIN risk (p > 0.3). as in table 3.

Table 3: Bleeding, Vaginal Discharge, and Contraceptive Risk Factors for CIN.

Variable	Cases (%)	Controls (%)	Odds Ratio	95% CI	p-value
Postmenopausal Bleeding: No	67 (95.7%)	178 (98.3%)	1*	-	0.392
Postmenopausal Bleeding: Yes	3 (4.3%)	3 (1.7%)	2.667	0.537–13.239	
Abnormal Vaginal Discharge: No	59 (84.3%)	157 (86.6%)	1*	-	0.735
Abnormal Vaginal Discharge: Yes	11 (15.7%)	24 (13.4%)	1.195	0.563–2.536	
Oral Contraceptive Use: Never	61 (87.1%)	153 (84.1%)	1*	-	0.490
Oral Contraceptive Use: Ever	9 (12.9%)	29 (15.9%)	0.783	0.361–1.697	
IUD Use: Never	64 (91.4%)	167 (91.7%)	1*	-	0.958
IUD Use: Ever	6 (8.6%)	15 (8.3%)	0.978	0.359–2.665	
Injectable Contraceptive Use: Never	67 (95.7%)	182 (99.4%)	1*	-	0.043
Injectable Contraceptive Use: Ever	3 (4.3%)	1 (0.6%)	7.238	0.740–70.787	
Contraceptive Duration ≤1 yr	17 (24.3%)	51 (28.0%)	1*	-	0.803
Duration 2–4 yrs	18 (25.7%)	49 (26.9%)	1.078	0.533–2.177	
Duration ≥5 yrs	35 (50.0%)	82 (45.1%)	1.462	0.777–2.753	
Combined Oral Contraceptive Use: Never	67 (95.7%)	170 (92.4%)	1*	-	0.348
Combined Oral Contraceptive Use: Ever	3 (4.3%)	14 (7.6%)	0.539	0.145–2.005	

DISCUSSION

In this study, women taking part in Basrah's National Cervical Cancer Screening Programme were evaluated for the prevalence of cervical intraepithelial neoplasia (CIN) and risk factors related to it. Married women who qualified for screening made up the target population, and program participants during the study period made up the source population. Because symptomatic women are more likely to attend screening, selection bias may still exist even when efforts are made to include all screened women. With CINI accounting for 14.8% and CINII for 1%, the prevalence of CIN was comparatively high, particularly among women aged ≥35 years (19%). These rates are even higher than U.S. figures (1.2 per 1,000 for CINI) (64), and they are significantly higher than those reported in Saudi Arabia (1.98% and 0.48%) and Turkey (0.6%).[12-14] Differences in study populations, variations in the distribution of risk factors,

or non-random recruitment of women with symptoms could all be responsible for this elevated prevalence.[15] The study's findings regarding socioeconomic factors—namely, women with low socioeconomic status and education—aligned with earlier findings from American Indian and meta-analysis studies.[16,17] Contrary to several international studies, sexual behaviour variables like multiple sexual partners and early age at first marriage did not significantly correlate with CIN.[18-21] Sample size restrictions or cultural norms could be to blame for this. While some studies support the notion that early pregnancy, high parity, and vaginal deliveries are risk factors.[18,19] others find no correlation at all.[22] Remarkably, a history of miscarriages was linked to a higher risk of CIN, which is in line with results from Chinese and American research.[16,23] The results of using contraceptives were not entirely consistent. In line with meta-analyses and research from the UK and Iraq, using combined oral contraceptives (OCP) was associated with an increased risk of CIN, particularly when using them for an extended period of time.[18,24,25] Contrarily, using an intrauterine device (IUD) had a protective effect, which is in line with findings from Europe[26], though other research indicates that there was no discernible effect. Although statistically insignificant, condom use was linked to lower risk, which is consistent with data from Italy and the UK.[18,27] Prior genital infections were found to be strongly and independently associated with CIN. This result is consistent with meta-analyses that link bacterial vaginosis to increased risk for CIN and HPV infection[28,29] In line with findings from studies conducted in the UK and the US, which suggested that carcinogens like benzo[a]pyrene in smoke may accelerate HPV-related carcinogenesis, passive smoking also became a significant independent risk factor for CIN.[30-31] One study, however, found no connection between smoking and HPV acquisition.[32] Consistent with previous reports, the only gynaecological symptom that was significantly linked to CIN was abnormal current vaginal discharge.[33] Although some studies emphasise their diagnostic value in women with symptoms, postcoital and intermenstrual bleeding did not demonstrate significant associations.[34,35]

CONCLUSION

The effectiveness of the first cervical screening program in Basrah was highlighted by the relatively high prevalence of cervical intraepithelial neoplasia. The prevalence rose steadily as women aged. Passive smoking, low socioeconomic status, and prior genital infection were found to be significant independent risk factors. Although they were not independent risk factors, other factors like the length of a marriage, a history of miscarriages, and the use of contraceptives showed associations.

REFERENCES

1. Cervical cancer. Wikipedia, the free encyclopedia. Available from: http: //en.wikipedia.org/wiki/cervical_cancer [Accessed 2012 Feb 11].
2. Haie-Meder C, Morice P, Castiglione M. Cervical cancer: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. Ann Oncol, 2010; 21(Suppl 5): v37–40.
3. Edmonds DK. Premalignant and malignant diseases of the cervix. In: Shafi MI, editor. Dewhurst's Textbook of Obstetrics and Gynaecology for Postgraduates. 6th ed. USA: Blackwell Science, 1999; 571–81.
4. Lynette D. The prevention of cervical cancer in developing countries. BJOG, 2005; 112(9): 1204–12.
5. WHO/ICO Information Centre on HPV and cervical cancer (HPV Information Centre). Human Papillomavirus and related cancers in Iraq. Summary Report 2010. Available from: https: //www.who.int/hpvcentre [Accessed 2012 May 5].
6. Basrah Cancer Research Group (BCRG). Cancer in Basrah: Epidemiological analysis of incident cancer 2005–2008. Basrah: Dar AlKutub for Publication, 2009.
7. Mutyba TS. Early cervical lesion detected by visual inspection: viral factors, management and follow up [thesis]. Kampala and Stockholm: Makerere University College of Health Sciences, 2009.
8. Xian WJ. Cervical cancer screening: Less testing, smarter testing. Cleve Clin J Med, 2011; 78(11): 737–47.
9. Herrero R, Hildesheim A, Bratti C. Population-based study of human papillomavirus infection and cervical neoplasia in rural Costa Rica. J Natl Cancer Inst, 2000; 92(6): 464–74.
10. de Sanjosé S, Quint WG, Alemany L, Klaustermeier JE, Lloveras B, Tous S, et al. Human papillomavirus genotype attribution in invasive cervical cancer: a retrospective cross-sectional worldwide study. Lancet Oncol, 2010; 11: 1048–56.
11. Department of Public Health. Cervical cancer screening programme in Iraq. Baghdad: Iraqi Ministry of Health, 2011.
12. Balaha MH, Al Moghannum MS, Al Ghowinem N, Al Omran S. Cytological pattern of cervical Papanicolaou smear in eastern region of Saudi Arabia. J Cytol, 2011; 28(4): 173–7.
13. Mansoor I. Profile of cervical smears cytology in western region of Saudi Arabia. Internet J Pathol. 2002; 2(1): 18.
14. Atilgan R, Celik A, Boztosun A, Ilter E, Yalta T, Ozercan R. Evaluation of cervical cytological abnormalities in Turkish population. Indian J Pathol Microbiol, 2012; 55(1): 52–5.
15. Selo-Ojeme DO, Dayoub N, Patel A, Metha M. A clinico-pathological study of postcoital bleeding. Arch Gynecol Obstet, 2004; 270(1): 34–6.

16. Schiff M, Miller J, Masuk M, van Asselt-King L, Altobelli KK, Wheeler CM, et al. Contraceptive and reproductive risk factors for cervical intraepithelial neoplasia in American Indian women. Int J Epidemiol, 2000; 29(6): 983–90.
17. Parikh S, Brennan P, Boffetta P. Meta-analysis of social inequality and the risk of cervical cancer. Int J Cancer, 2003; 105(5): 687–91.
18. Green J, Barrington de Gonzalez A, Sweetland S, Beral V, Chilvers C, Crossley B, et al. Risk factors for adenocarcinoma and squamous cell carcinoma of the cervix in women aged 20–44 years: the UK National case–control study of cervical cancer. Br J Cancer, 2003; 89(11): 2078–86.
19. Matos A, Moutinho J, Pinto D, Medeiros R. The influence of smoking and other cofactors on the time to onset of cervical cancer in a southern European population. Eur J Cancer Prev, 2005; 14(5): 485–91.
20. Biswas LN, Manna B, Maiti PK, Sengupta S. Sexual risk factors for cervical cancer among rural Indian women: A case–control study. Int J Epidemiol, 1997; 26(3): 491–5.
21. Sharaf HM, El-Kinawy NS, Awad NM, Gomaa MF. Molecular detection and genotyping of human papilloma virus in cervical specimens among Egyptian female patients. Life Sci J., 2012; 9(2): 768–74.
22. Becker TM, Wheeler CM, McPherson RS, Kratochvil A, Pannenter CA, North CQ, et al. Risk factors for cervical dysplasia in southwestern American Indian women: a pilot study. Alaska Med, 1993; 35(4): 255–63.
23. Belinson S, Smith JS, Myers E, Olshan A, Belinson J, Pretorius R, et al. Descriptive evidence that risk profiles for cervical intraepithelial neoplasia 1, 2, and 3 are unique. Cancer Epidemiol Biomarkers Prev, 2008; 17(9): 2350–5.
24. Delgado-Rodriguez M, Sillero-Arenas M, Martin-Moreno JM, Galvez-Vargas R. Oral contraceptives and cancer of the cervix uteri: A meta-analysis. Lancet, 1983; 2(8356): 930–4.
25. Lacey JV Jr, Brinton LA, Abbas FM, Barnes WA, Gravitt PE, Greenberg MD, et al. Oral contraceptives as risk factors for cervical adenocarcinomas and squamous cell carcinomas. Cancer Epidemiol Biomarkers Prev, 1999; 8: 1079–85.
26. Moreno V, Bosch FX, Muñoz N, Meijer CJ, Shah KV, Walboomers JM. Effect of oral contraceptives on risk of cervical cancer in women with human papillomavirus infection. Lancet, 2002; 359(9312): 1085–92.
27. Parazzini F, Negri E, La Vecchia C, Fedele L. Barrier methods of contraception and the risk of cervical neoplasia. Contraception, 1989; 40(5): 519–30.
28. Lanham S, Herbert A, Basarab A, Watt P. Detection of cervical infections in colposcopy clinic patients. J Clin Microbiol, 2001; 39(8): 2946–50.
29. Gillet E, Meys JFA, Verstraelen H, Bosire C, De Sutter P, Temmerman M, et al. Bacterial vaginosis is associated with uterine cervical human papillomavirus infection: a meta-analysis. BMC Infect Dis, 2011; 11: 10.
30. Ward KK, Berenson AB, Breitkopf CR. Passive smoke exposure and abnormal cervical cytology in a predominantly Hispanic population. Am J Obstet Gynecol, 2011; 204(3): 213–6.
31. Seltman KM, Castle PE, Guido R, Schiffman M, Wheeler CM. Smoking is a risk factor for cervical intraepithelial neoplasia grade 3 among oncogenic human papillomavirus DNA-positive women with equivocal or mildly abnormal cytology. Cancer Epidemiol Biomarkers Prev, 2005; 14: 1165–70.
32. Collins S, Rollason TP, Young LS, Woodman CBJ. Cigarette smoking is an independent risk factor for cervical intraepithelial neoplasia in young women: a longitudinal study. Eur J Cancer, 2010; 46(2): 405–11.
33. Khan MS, Raja FY, Ishfaq G, Tahir F, Subhan F, Kazi BM. PAP smear screening for pre-cancerous conditions of the cervical cancer. Pak J Med Res, 2005; 44(3): 111–3.
34. Obeidat RA, Saidi SA. Prevalence of high-grade cervical intraepithelial neoplasia (CIN) and cervical cancer in women with post-coital bleeding and negative smear: A retrospective study. Gynecol Obstet, 2012; 2(4): 127.
35. Selo-Ojeme DO, Dayoub N, Patel A, Metha M. A clinico-pathological study of postcoital bleeding. Arch Gynecol Obstet, 2004; 270(1): 34–6.