

Dedication

I would like to convey my deep gratitude and appreciation to my beloved parent, for their help and encouragement especially to the spirit of my dear mother who passed away before receiving the fruit of this effort. They always encouraging me exert more efforts and to continue my study and develop my career, to both of them I devote this handable work.

Also I would like to send my great thanks to my husband, Dr.Emadaldin Ahmed, for his precious support and good guidance.

And for my daughter Fathiya, and my sons Mohammed, and Momen .

Then I'm not going to forget my big family, brothers Eng.Mohammed, Dr.Saadaldin and sisters Eng .Lubna and Translator Wisal .

Acknowledgment

This research took me almost a year, by that time; I have met with a great people who were contributed in many ways to come out with this project. It is a pleasure to convey my gratitude to them all in my humble acknowledgment.

Firstly I would like to note my gratitude to Dr. Hussain Gad elkarim for his supervision, advice, encouragement and guidance from the very early stage of this research as well as giving me opportunities of experiences throughout the work, attending meetings and conferences. I am indebt to him more than what he knows.

I gratefully acknowledge to Dr.Gubara Abdel Latif consultant of Obs and Gynocology, Dr.Salma Gerais and the Nurse Seeda team work of Al Nou Hospital.Also, Dr. Mohammed Sedeeg, Astaza.Monira,Astaz.Abu Algasim for their willingness in answering many of my questions, advice and crucial contribution. I am grateful in every possible way and hope to collaborate in the future.

Collective and individual acknowledgements to my college particularly, Faris, Tagwa, Sanna, Asma, Redab, Asha, Ebtehag and Isrra for help and support. Many deep thanks to the Pharmacist Dr. Imad Ahmed for guidance and support in work.

Finally, I would like to thanks every body that was important to successful realization of research, as well as expressing my apology to those who I could not mention personally one by one.

Abstract

This is a descriptive study conducted in El Nou Hospital (Screening Center for Cervical Cancer) during the period from December 2009 to August 2010. The study aimed to find out if there is any relation between HPV16 and 18 in cervical cancer and oral epithelial cells infection. HPV was investigated among 50 women of whom, 40 were patients with cervical lesions and 10 were clinically healthy (as control group). For each study subjects two specimens were taken (cervical cells and oral cells). The DNA was extracted from tissue samples then polymerase Chain Reaction (PCR) was applied to investigate the HPV. In this study, among 40 patients with cervical lesions, HPV was identified in sixteen (40%) of study subjects. Of the eight (20%) positive with HPV subtype 16, six (15%) were identified with HPV subtype 18, and two (5%) were detected with both HPV subtypes 16 and 18. All of the clinically healthy cases were found negative.

However, in specimen from oral cavity only one (2.5%) case was found positive for HPV subtype 16.

HPV plays a critical role in the development of cervical cancer, in the Sudan. No clear relation between cervical and oral HPV infection. The study recommended screening more patients who suffer from cervical cancer using more advanced molecular techniques to confirm the role of the HPV in developing of cervical SCC in Sudan.

ملخص الاطروحة

هذه دراسة وصفيه اجريت بمستشفى النو (مركز الكشف المبكر لسرطان عنق الرحم) في الفتره من ديسمبر 2009- أغسطس 2010 هدفت هذه الدراسه اذا كانت هنالك علاقه بين فيروس الورم الحليمي البشري من النوع 16-18 في سرطان عنق الرحم والخلايا الظاهرية الفمويه . فيروس الورم الحليمي البشري تم التتحقق منه في 50 امرأه (40 مريضه مصابه بآفه الرحم و 10 أصحاء) (مجموعه ضبط) لهذه الدراسه اخذت عينتين (مسحه من عنق الرحم ومن تجويف الفم.

الحامض النووي الريبيوزي تم استخلاصه من عينات النسيج ثم طبق تفاعل البلمره التسلسلي للتحقق من فيروس الورم الحليمي البشري . خلال 40 مريضه بآفه الرحم . فيروس الورم الحليمي البشري تم التعرف عليه لدى 16 (40%) في هذه الدراسه. 8 (20%) تم تشخيصهم بفيروس الورم الحليمي البشري من النوع 16, 6 (%) من فيروس الورم الحليمي البشري النوع 18 ، و 2 (5%) من فيروس الورم الحليمي البشري النوعين 16 ، 18 . كل العينات التي اخذت من الاصحاء وجدت سالبه . اما الفم من بين الذين شملتهم الدراسه 1 (2%) تم التتحقق من فيروس الورم الحليمي من النوع 16.

الحليمي البشري يلعب دور فعال في تطور سرطان الرحم في السودان ، ليست هناك علاقه واضحه بين اصابات فيروس الورم الحليمي البشري في الرحم و الفم . هذه الدراسه توصي بزياده المسح الذريئ للمرضى الذين يعانون من سرطان الرحم وباستخدام انواع متقدمه من الفحص الجزيئ للتأكد من فيروس الورم الحليمي البشري في تطور سرطان عنق الرحم في السودان.

List of Tables

Table	Page
1. Showing PCR Program used for amplification of HPV genes.	26
2. Table (1): The distribution of study population by age group.	29
3. Table (2): The frequency of HPV subtypes in cervical smear among study population.	30
4. Table (3): The frequency of HPV subtypes in bucal smears among study population.	31
5. Table (4): The geographical distribution of HPV subtypes.	32
6. Table (5): The relation between the age group and cervix HPV subtypes.	33

List of Contents

	Pages
Dedication	I
Acknowledgement	VI
Abstract	VI
List of Tables	V
List of contents	VI

Chapter one

1. Introduction	1
------------------------	----------

Chapter two

2. Review of literature	4
2.1 Scientific Background	4
2.1.1 Histology of the cervix:	4
2.1.2 Cytological appearance:	5
2.2 Hormonal influence:	6
2.3 Inflammatory and other condition:	7
2.3.1 Bacterial infection:	7
2.3.2 Fungal infection:	7

2.3.4 Parasitic infection:	7
2.3.5 Herpes Simplex Virus (HSV):	8
2.3.6 Human Papilloma Virus (HPV) infection	8
2.3.7 Cervicitis:	8
2.3.8 Cervical intraepithelial neoplasia (CIN):	9
2.3.9 Dyskaryosis:	9
2.3.10 Invasive carcinoma of the cervix:	10
2.3.11 Adenocarcinoma of the endocervix:	10
2.4 Benign tumor:	10
2.4.1 Endocervical polyps	10
2.4.2 Leiomyoma	10
2.4.3 Adenomyoma and papillary (Adenofibroma) :	11
2.5 Etiology:	11
2.5.1.1 HPV Life Cycle and Transmission	12
2.6 Diagnosis	13
2.6.1 Cytological techniques:	13
2.6.2 Immunohistochemistry techniques :	13
2.6.3 Molecular analysis	14
2.6.3.1 Polymerase chain reaction (PCR):	14
2.7 Management:	15
2.8 The oral epithelia cells:	16
2.8.1 Scientific back ground	16
2.8.1.1 Histology of the oral cavity:	16
2.8.1.2 Cytology of oral cavity:	17
2.8. 1.2.1 Squamous epithelial cells:	17

2.9 Ulcerative and Inflammatory:	17
2.9.1 Pyogenic Granuloma	17
2.9.2 Aphthous Ulcers	18
2.9.3 Actinomycosis	18
2.9.4 Oral lesions of Histoplasmosis:	18
2.9.5 Herpes Virus Infection	18
2.9.6 Fungal infection	19
2.9.7 Hairy Leukoplakia	19
2.9.8 Leukoplakia	20
2.10 Benign tumor in oral cavity:	20
2.10.1 Fibroma:	20
2.10.2 Neurilemmoma and Neurofibroma	20
2.10.3 Fibromatosis Gingivae :	21
2.10.4 Papilloma:	21
2.11 Diagnosis of oral:	21
2.11.1Exfoliative cytology:	21
2.12 Risk factors of oral cancer:	22
2.12.1 Tobacco smoking:	22
2.12.2 Alcohol	22
2.13 Epidemiology of oral cancer:	22

Chapter Three

3. Objectives	24
----------------------	-----------

Chapter Four

4. Materials and methods	25
4.1 Study design	25
4.2 Study Area	25
4.3 Materials	25
4.4 Tissue sections preparation for polymerase chain reaction (PCR)	25
4.5 DNA Extraction:	25
4.6 Polymerase chain reaction (PCR)	26
4.6.1 Amplification of HPV	26
4.6.2 Gel-electrophoresis	27
4.6.3 Interpretation of PCR results	27

Chapter Five

5. Results	28
-------------------	-----------

Chapter Six

6. Discussion	34
----------------------	-----------

Chapter Seven

7. Conclusions and Recommendations	37
---	-----------

Chapter Eight

