



HPV, HPV Vaccine and Cancer Cervix and other HPV related Cancers

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HPV (Human Papilloma Virus) is a DNA Virus with double strands has a tropism for the Squamous Epithelial cells more so the Basal layer.

There are around 200 serotypes and Molecular types of HPV.

The High Risk types Types 16, 18 can cause Cancer of the Cervix 99%, Cancers of vagina, penis, scrotum, anus, oropharynx and Adenocarcinoma of the Cervix and also Urinary Bladder cancers.

The Low Risk. types cause warts

The HPV produces the Oncoproteins E 5 , E6 and E 7

The infection can be diagnosed by PCR. DNA ISH (In situ hybridization) , RNA ISH
P 16 is the surrogate marker detected by IHC Immunohistochemistry.

Dual p16 / E 4 testing is also done

Also Serum Antibodies against HPV 16 and against E 1 / E 4

The mode of transmission is by vaginal sex , oral sex , and anal sex as well as by intimate touching like fingering. by sharing sex toys and from mother to the child .

By oral sex the HPV Virus is transmitted from the Genital region to the mouth , oropharynx and tonsil Causing Head Neck cancer.

Smoking and impaired immunity will help the Virus to progress and cause Cancer.

Dr Harald zur Hausen a German Virologist first demonstrated the relation between HPV Serotypes 16 and 18 and Cancer Cervix.

For this discovery he was awarded the Nobel Prize in Physiology or Medicine in 2008

The HPV Vaccines are Gardasil and Cervarix

In India the Government of India has launched an immunisation drive for girls Aged 14 .
Gardasil 4 which is a Quadrivalent HPV Vaccine developed against the HPV Serotypes 16, 18,
6 and 11

The HPV Vaccine is given to the girls and boys before their sexual activity .
In Western countries and developed countries it is given at ages of 11 to 12 years.
The Vaccine gives 97 % to 99 % protection against HPV
The immunity lasts for around 10 years

The HPV Vaccine Gardasil was approved by US FDA in 2006
Currently recommended by WHO and being used in 150 countries
First used in 2006.
Australia is the first country to give the Vaccine for girls and boys .

Due to alleged reported side effects Japan withdrew the Vaccine in 2013 .
But in 2021 Japan had restarted the HPV Vaccination Programme.

What are the contraindications ?
Pregnancy. Allergy. Present illness

What are the side effects of the HPV Vaccine ?
They are pain , swelling. redness at the injection site. fever ,dizziness. fainting ,headache ,
fatigue , joint pain.
Very rarely allergy and Anaphylactic shock. GB (Guillaine Barre) Syndrome and other
Autoimmune Diseases

The Vaccine is administered by Intramuscular injection
2 to 3 doses.

Gardasil is a Recombinant , Non infective 4 valent vaccine. It uses the Capsid protein of the
HPV types 16 ,18 ,6. 11
It induces a strong immune response
The immunity lasts for 10 to 12 years.

Inspite of Vaccination it must be stressed that the women must be screened after marriage
with Pap smears testing and HPV testing every 3 to 5 years

AstraZeneca and Merck
(the company is known as MSD outside USA and Canada) have a major stake in the HPV
Vaccine .

In 2008 when the Nobel Prize was announced there was a major controversy regarding
Financial Conflict of Interest and exclusion of other key researchers.
AstraZeneca which had a stake in the HPV Vaccine was also the sponsor of Nobel Web.and
Nobel Media and has ties with the Nobel Foundation.
Also one member of the Board of AstraZeneca was also on the Nobel Committee which
selects the Prize winners.

The Risk factors for Cancer of the Cervix are

HPV , Smoking , low immunity , early onset of sexual activity below 18 years , multiple sexual partners, parity ie many children ,other Sexually transmitted diseases, obesity , imbalanced diet ,oral contraceptives and DES (Di ethyl stilbesterol) given to the mother during pregnancy .

Family history must also be considered.

A Study conducted by Dr Anjali Naik and Dr R.G Wiseman Pinto in Goa Medical College a 10 year old study from 2010 to 2019 involving 11.690 cancers of all sites .

In this study the incidence of Breast Cancer was 22.75 % and Cancer Cervix was 8.67 %

So Breast Cancer is the commonest and Cancer Cervix is the second commonest in women in Goa.

The author at an International Conference in Yokohama. Japan in May , june 2016 (ICC International Congress of Cytology) had recommended 2 important points to the WHO and Authorities in India .

1. to screen the women in India for the HPV Serotypes so as to know the prevalence and the serotype in India

2. to give the Vaccine at a slightly later age in India as the girls in India are sexually active later as compared to the West.

The modern trends may be changing.

So the take home message is, inspite of being vaccinated every women must get a periodic Pap smear test and HPV Test done.

Pap smears are done in Goa in all Government and private set up.

HPV testing is done by the Obstetrics and Gynaecology Department and Microbiology Department of GMC as well as the District and Sub District hospitals in Goa.

The HPV Vaccine is recently launched all over India in 2026 , though first introduced in the developed countries in 2006.

Due to the high cost the Vaccine was given in metro cities to the rich patients .

Now the Government of India is giving the Vaccine free of cost

Dr Zahra Maleki Associate Professor of Pathology John Hopkins Baltimore has done extensive work on HPV Related Head Neck Cancers

She Presented a case of a black American girl of 18 years who had HPV Related Head Neck Cancer

and was not given HPV. Vaccine.

The author discussed with Dr Maleki and concluded that if she had taken HPV Vaccine it would protect her from Head Neck cancer as well as Cervical Cancer.