اقدامات قبل از عمل در بیماران HPV

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اقدامات قبل از عمل در بیماران HPV

- Human Papillomavirus (HPV) is a highly contagious and commonly sexually transmitted human pathogen.
- The majority of known HPV genotypes are harmless or considered “low-risk” types (e.g. HPV-6 and HPV-11), which primarily cause benign cutaneous warts and anogenital lesions.
- Papillomatosis of the oropharyngeal and laryngobronchial system has also been attributed to infection with low-risk HPV genotypes.

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- High-risk genotypes (e.g. HPV-16 and 18) → cervical cancer and other urogenital malignancies in both women and men.
- Despite introduction of vaccines against relevant HPV genotypes, an increasing prevalence of HPV-16-positive oropharyngeal cancers has been reported over the past decades.

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- Procedures:
  - Laser ablation
  - electrosurgery, e.g. loop electrical excision (LEEP)
  - cryosurgical procedures

- HPV is highly contagious in direct skin to skin contact and thus the use of protective gloves is generally established amongst healthcare wokers

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- Most HPV-associated neoplasms suitable for physical ablation are induced by low risk HPV genotypes
- Multiple high- and low risk HPV genotypes have been shown to coexist even in benign neoplasms, particularly in the anogenital region.
- Even low-risk HPV-associated lesions bear a risk for the development of malignancy.
- This knowledge highlights the importance of prevention in exposed medical staff regardless of HPV genotype.

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- Is airborne transmission of infectious HPV particles during ablation procedures possible and does it lead to an elevated risk for HPV lesions of the upper airways in medical staff?

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Ten studies identified HPV DNA in ablation smoke derived from CO2 laser, electrocoagulation and/or LEEP in vapor samples or filters of a local air exhaustion system.

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- Three studies found HPV genotypes of the ablated patient lesions, in the nasolabial fold and upper airways of medical staff following CO2, electrocoagulation and/or LEEP ablation.

- In a prospective study, high-risk HPV were found in LEEP generated smoke. HPV caught in exhaust suction tubes during the procedure were matching those from the four resected intraepithelial neoplastic cervix (CIN) lesions

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- HPV DNA load was increasing with positional distance of the smoke evacuation device from the ablation site.

- The authors further identified HPV DNA in the nasal cavities of 2 surgeons after LEEP procedure, which again corresponded with HPV genotypes found in the respective ablated tissues; however, this nasal HPV DNA was not traceable in follow up (3–6 month)

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- HPV DNA was found in 32% of nasolabial fold swipes and in 16% of nasal cytobrush specimens of gynaecologists conducting several consequent CO2 laser and electrocoagulation sessions on genital warts.

- No data was found on airborne HPV DNA dispersal risk during cryotherapy.

- Contamination of cryoguns with HPV is highly dependent on cleaning methods and herpes simplex virus was shown to “survive” up to 12h on cotton-tipped applicators.

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- Very few studies have documented infectious potency of dispersed papillomavirus from ablation procedures

- Bovine papillomavirus collected from CO2 laser smoke during wart treatment in cattle induced cutaneous fibropapillomas when reinoculated into skin of calves.

- In a murine model, surgical smoke from mouse tail warts ablated with KTP laser was consistently capable of transmitting mouse papillomavirus (MmuPV1) to uninfected mice.

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- Three case reports describing four case histories of HPV associated upper airway disease due to surgical smoke exposure.
- In 1990, a 44-year old surgeon who had treated rectal lesions and anogenital condylomas using a Nd:YAG laser over the course of 3 years, developed laryngeal papillomatosis associated with HPV subtypes 6 and 11.
- He had used a surgical mask, gloves and eye protection, but no specific smoke evacuation system.

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- In 2003, a 28 year old gynaecology nurse, who had repeatedly assisted in electrocautery and CO2 laser treatments of anogenital condylomata without proper protective equipment, developed laryngeal papillomatosis.

- There are two reported cases of HPV-16-positive oropharyngeal squamous cell cancers in gynaecologists. Both had over 20 years of practice in performing physical ablation procedures, particularly CO2 laser and LEEP, in HPV associated lesions of the cervix and vulva. They were male, 53 and 62 year old respectively, and appeared to have no other relevant risk factors for HPV-16 infection.

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- samples from 700 gynecologist (n = 469 exposed to electrosurgical smoke, out of which n = 356 were performing LEEP).
- More prevalent in nasal epithelia of staff performing any kind of electrosurgery compared to non-exposed staff.
- Highest prevalence rates were found for staff conducting electrosurgery for over 15 years (17.33%), followed by 10–15 years (13.21%), 5–10 years (7.22%) and 0–5 years (6.15%).
- HPV-16 was the most prevalent genotype in the nasal swabs of the electrosurgery group (76.19%).
- No HPV DNA was detected in the group of positively tested gynecologists still participating in the study after 24 months.

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- In a STUDY, only found a higher prevalence of hand warts in dermatologists which the authors attributed to insufficient use of preventive equipment.

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- Safety recommendations
  - use, but also correct disposal, of examination gloves, aprons, caps and appropriate (regularly cleaned or disposable) eye protection.
- Closely positioned local smoke exhaustion systems and highly efficient filters as well as appropriate room ventilation
- Fortunately, the use of N95 masks and, to some extent, even surgical masks were shown to effectively reduce contamination of nasal epithelia with HPV DNA.

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