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Introduction and sustained high coverage of the HPV bivalent vaccine leads to a reduction in prevalence of HPV 16/18 and closely related HPV types

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Background: In 2008, a national human papillomavirus (HPV) immunization programme began in Scotland for 12–13 year olds females with a three-year catch-up campaign for those under the age of 18. Since 2008, three-dose uptake of bivalent vaccine in the routine cohort aged 12–13 has exceeded 90% annually, while in the catch-up cohort overall uptake is 66%.

Methods: To monitor the impact of HPV immunisation, a programme of national surveillance was established (pre and post introduction) which included yearly sampling and HPV genotyping of women attending for cervical screening at age 20. By linking individual vaccination, screening and HPV testing records, we aim to determine the impact of the immunization programme on circulating type-specific HPV infection particularly for four outcomes: (i) The vaccine types HPV 16 or 18 (ii) types considered to be associated with cross-protection: HPV 31, 33 or 45; (iii) all other high-risk types and (iv) any HPV.

Results: From a total of 4679 samples tested, we demonstrated that three doses (n¼1100) of bivalent vaccine are associated with a significant reduction in prevalence of HPV 16 and 18 from 29.8% (95% confidence interval 28.3, 31.3%) to 13.6% (95% confidence interval 11.7, 15.8%). The data also suggest cross-protection against HPV 31, 33 and 45. HPV 51 and 56 emerged as the most prevalent (10.5% and 9.6%, respectively), non-vaccine high-risk types in those vaccinated but at lower rates than HPV 16 (25.9%) in those unvaccinated.

Conclusions: This data demonstrate the positive impact of bivalent vaccination on the prevalence of HPV 16, 18, 31, 33 and 45 in the target population and is encouraging for countries which have achieved high-vaccine uptake.

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A novel approach to inhibit human immune deficiency virus (HIV-1) infection by actively neutralizing the antibodies of reverse transcriptase system

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This work was applied to study the effect of a novel enzymes combination comprising reverse transcriptase and DNA polymerase (VK 25 RD formula) as immunogens to stimulate the formation of neutralizing non-specific mAbs to AMV-RT enzyme that can block the activity of HIV-RT enzyme system by cross reaction for treatment of HIV. Pilot study was applied on ten patients, their immunological data revealed a viral load of more than 1,000 copies/ml by human immune deficiency virus-ribonucleic acid-polymerase chain reaction (HIV-RNA-PCR), positive antibody to HIV-1 and CD4+ T-cell values less than 250 cells/µl. Five patients take this medication in the form of subcutaneous injection of 0.1 cc twice daily for 24 weeks (test group) and the other five contributed to the study by giving only blood samples during 24 weeks (control group). All of the patients showed the same clinical symptoms of HIV/AIDS and wrote consent of acceptance to take this combination therapy. Blood samples were collected from all ten patients at 6, 12, 18 and 24 weeks. At the end of therapy the test group viral loads had reached under the detectable limits (less than 16 copies/ml), significant increases of their CD4 cells count over 500 cells/µl and the most important finding of great immunological value is that HIV antibodies by Enzyme-Linked Immunosorbent Assay (ELISA) testing were negatives. According to these findings, this therapeutic modality was promising for treating HIV-1 disease and human immunodeficiency syndrome.

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