## Table V: Sequential administration IPV-OPV

**Population :** Immunocompetent individuals
**Intervention:** Sequential administration of IPV followed by OPV
**Comparison:** No vaccination
**Outcome :** Immonogenicity/ Cases of poliomyelitis/ VAPP

**PICO Question:** What is the quality of scientific evidence that sequential immunization schedules starting with ≥2 doses of IPV followed by ≥2 doses of OPV induce protective immune responses to all two poliovirus serotypes in ≥ 90% of vaccines, (i.e. responses comparable to those induced by the same number of doses of either OPV or IPV alone

| | | | Rating | Adjustment to rating |
|---|---|---|---|---|
| Quality Assessment | No of studies/starting rating | | 2 RCT/ 6 observational[1] | 4 |
| | Factors decreasing confidence | Limitation in study design | None serious | 0 |
| | | Inconsistency | None serious | 0 |
| | | Indirectness | None serious | 0 |
| | | Imprecision | None serious | 0 |
| | | Publication bias | None detected | 0 |
| | Factors increasing confidence | Strength of association/ large effect | Not applicable | 0 |
| | | Dose-response | Not applicable | 0 |
| | | Antagonistic /mitigated bias and confounding | Not applicable | 0 |
| | **Final numerical rating of quality of evidence** | | | **4** |
| Summary of Findings | **Statement on quality of evidence** | | | Evidence supports a high degree of confidence that the true effect lies close to that of the estimate of effect on health outcome. |
| | **Conclusion** | | | High scientific evidence that a sequential schedule of IPV and OPV protects against clinical poliomyelitis. |

[1]Modlin JF et al (1997) showed in a randomized controlled study of 510 infants, that for each of the 3 IPV-OPV experimental sequential schedules, the first OPV dose significantly enhanced seroconversion rates and geometric mean micro-neutralization antibody titers (GMT).3 months after the final dose, 96%-99%, 99%-100%, and 81%-100% of infants had antibodies to poliovirus types 1, 2, and 3, respectively. Subjects with ≥2 prior OPV doses were significantly less likely than those with none or one prior OPV dose to excrete virus in feces after an OPV challenge. Faden H et al (1990) showed that incorporation of at least one dose of IPV at the start of the immunization schedule tends to increase systemic as well as local antibody production. Faden H et al (1993) showed that as compared to OPV-OPV-OPV, eIPV-eIPV-eIPV, eIPV-OPV-OPV, and eIPV-eIPV-OPV those receiving the eIPV-eIPV-OPV schedule maintained the highest antibody levels throughout the observation period, including the response to OPV challenge at 5 years of age. Swartz TA et al (1998) assessing the effectiveness of an intercalated IPV-OPV vaccine programme in Israel concluded that the programme offered high individual protection throughout the first 5 years of life. von Magnus H et al (1984) reported that in Denmark with a sequential 3-dose IPV/OPV immunization programme since 1968, ≥95% of the population had antibodies to poliovirus, and the GMT of serum antibodies ≥10 IU for all three types. Lu CY et al (2001) showed that protective antibodies were present in all infants (6 months), 2 months after the second IPV dose. Antibody titers were augmented at the age of 19 months,1 month after the booster dose of OPV. In the US no VAPP case occurred with the IPV-OPV schedule (Alexander et al.2004). Seroconversion rates against polioviruses types 1 and 3 were non-inferior in sequential schedules containing IPV and bOPV, compared with an all-IPV schedule, and proportions of infants with protective antibodies were high (O'Ryan et al 2015).

References


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