Table V: Sequential administration IPV-OPV

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

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 three 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		1 RCT/ 5 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**			We are very confident 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.

References

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