

POSTER PRESENTATION

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Improving blood safety using fourth generation HIV ELISA as the screening tool in blood banks – an Indian experience

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Background

The newer fourth generation HIV ELISA has been shown to have an increased sensitivity compared to third generation ELISA.

Objectives

To estimate the yield of fourth generation HIV ELISA compared to third generation HIV ELISA assay and to determine HIV seroprevalence among blood donors.

Materials and methods

This prospective study involved 10200 blood donors – 6800 voluntary donors (3400 – students and 3400 – non students) and 3400 replacement donors. All blood units were tested using third and fourth generation ELISA. All positive & borderline positive samples were confirmed by Western Blot (WB).

Results

The HIV seroprevalence was estimated to be 1.37/1000 donations with 3rd generation and 3.62/1000 donations with 4th generation ELISA ($p > 0.05$). Of the 17 samples which were 4th generation ELISA positive and WB positive, 11 were positive with 3rd generation ELISA. Fourth generation ELISA tested 19 additional samples positive and 7 samples as possibly positive which were tested negative with 3rd generation ELISA, giving an additional yield of 26 window period units per 10200 donations i.e. 2.5/1000 donations. Of these, 6 were WB positive giving a yield of 0.58 window period units per 1000 donations. Since 2-3 components are prepared from each blood unit, the yield can be increased to 12-18/10200

donations. With an annual donation of nearly 46000 blood units, this will be 54-81 positive samples per 10200 donations.

Conclusions

Prevention of 54-81 individuals from acquiring new transfusion transmitted HIV infection with the newer fourth generation HIV ELISA assay with better performance and comparable cost is a cost-effective strategy.

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