Different methods and different self-inflating bag and mask sets (SIBMS) are used for passive oxygenation and active ventilation of newborn infants. The behavior of the resuscitating person is not always consistent. Some tend to use the front or the rear part of the SIBMS for passive oxygenation, ventilate at higher rates and increase the oxygen flow rate (OFR) attached to the bag in an attempt to increase the $F_{1.02}$ delivered to the infant. Trying to know which of these is an ideal practice, we planned to study the $F_{1.02}$ from the front and rear parts of different brands of SIBMS with different OFR (2, 4, 6, 8 and 10 L/min) and from the front part using same OFR and different ventilation rates (30 and 60/minute). Available SIBMS fall broadly into two categories. In type I, oxygen source is to be connected to a disc at the rear of SIBMS, parallel to its longitudinal axis. The disc can be rotated; oxygen source then faces either a hole (I-hole) or a ridge (I-ridge) in disc. In type II, the source is attached to the rear part at right angle to the longitudinal axis of the set which has no ridge or hole structures. The first group is represented by brand ‘VBM’ (Germany), the second by brand ‘Ambu’ (U.S.A.). The dimensions and volume of the 2 sets were nearly the same. An oxygen analyzer was used to measure the $F_{1.02}$ at different OFR supplied by 100% oxygen source.

**Passive Oxygenation.** With the side type (II), the $F_{1.02}$ measured from the front part was 21% and that measured from the rear part was 100% at all OFR. With the perpendicular type, in the first position (I-hole), the $F_{1.02}$ was high at low flow rates and decreased with increasing the flow. Similar findings happened when measuring $F_{1.02}$ from its rear part. With the oxygen source facing a ridge, (I-ridge) $F_{1.02}$ measured from the front was directly proportional to the oxygen flow rate i.e. increased with increasing the flow. From the rear part, the $F_{1.02}$ was near 100% at all flow rates.

**Active Ventilation.** Using type II, $F_{1.02}$ increased with increasing the flow rate and reached 100% at 10 L/min flow. With I-hole, $F_{1.02}$ increased gradually with increasing the flow but never reached 100%. With I-ridge, the performance was comparable to type II. In all the situations, $F_{1.02}$ was higher when the ventilation was done at rate 30/min than at rate 60/min. We concluded that the side type of SIBM can provide 100% oxygen from its rear part even at low flow rates and 100% oxygen during active ventilation provided at least 10 L/min oxygen flow rate is used. The perpendicular type is disadvantageous when the oxygen source faces a hole; as the jet flowing in the bag causes a Venturi effect; which sucks air from outside and dilutes the oxygen provided. The ridge type does not have this problem. Ventilating at 30/minute gives higher $F_{1.02}$.

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