Epoprostenol has been the first effective treatment for severe pulmonary arterial hypertension. Epoprostenol is provided in vials for adult therapy. This has two potential consequences in children and infants: medication errors, and increased costs due to drug waste, when more vials must be used for treatment even though small amount of drug are needed. To our knowledge there are no reports on specific dilution protocols for epoprostenol in VLBW infants, when very small infusion rates are required.
with 2 ng/kg/min. It must be reconstituted with a sterile diluent supplied in glass vials containing 50 ml of 94 mg glycine, 73.3 mg sodium chloride, sodium hydroxide (added to adjust pH), and water for injection, usp. The reconstituted solution of Flolan® has a pH of 10.2 to 10.8 and is increasingly unstable at a lower pH. Since Flolan® vials are prepared for adults, when given to small infants, its dosage and administration is somewhat challenging due to a fixed minimum diluted solution (250 ng/mL), and a vial containing 500,000 ng of dry powder. In order to keep the pH of the solution in the correct range, a fixed maximum amount of normal saline can be added to dilute the drug solution, according to the rate 6:1. Figure 1 shows the dilution protocol we applied.

For our patient, dosages and infusion rates (ml/hr) were calculated according the following formula:

\[
\text{Infusion rate (ml/hr) = } 60 \times \text{dosage (ng/kg/min)} \times \text{bodyweight (kg)} / \text{solution's concentration (ng/ml)}.
\]

We got the following results:

<table>
<thead>
<tr>
<th>Dosage (ng/Kg/min)</th>
<th>Infusion rate (mL/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.48</td>
</tr>
<tr>
<td>4</td>
<td>0.96</td>
</tr>
<tr>
<td>6</td>
<td>1.44</td>
</tr>
<tr>
<td>8</td>
<td>1.92</td>
</tr>
<tr>
<td>10</td>
<td>2.40</td>
</tr>
</tbody>
</table>

**Conclusion**

We have shown that our dilution protocol keeps the recommended dilution ratios, and the required solution pH, for very small dosages of epoprostenol, using the same diluent vial. Our method allows a correct and safe administration of epoprostenol in VLBW infants and it is applicable to infants with a weight as low as 500 g. We speculate it could be useful also for other drugs which dilution requires fixed parameters pH related.

**Disclaimer**

Before applying this dilution protocol, the physician should check carefully the composition and the concentration of the epoprostenol vials to be used, and obtain updated information from the manufacturer. The Authors and the Publisher do not assume any responsibility for the way in which this protocol is applied.

**References**