**OBJECTIVE**

Identify risk factors that lead to CytoBolus Adapter Set® malfunction, especially viscosity as mentioned by the manufacturer.

**CONCLUSION & PERSPECTIVE**

Viscosity does not appear to be the determining factor that leads to malfunction.

Further investigations would be necessary on both material and human factors.

**MATERIAL AND METHODS**

- Meeting nurses, pharmacists and CODAN representatives to design an Ishikawa diagram.
- Carrying out a standard form to collect adverse events.
- Describing experimental design: influence of device, viscosity and infusion rate on delivered volume.

**RESULTS**

- Two-way ANOVA:
  - At 50 ml/h: no significant differences.
  - At 1 ml/h: volumes delivered by the Phaseal® system unexpectedly lower with water for injection than dextrose 5% (p=0.00405) and dextrose 10% (p=0.00334).
  - Acceptable results, in compliance with the 3% accuracy of the automated infusion system (norm NF S 90-251).
  - No leak, no defective devices for the 216 experiments.

**BACKGROUND**

Since Sept-13:
- 20 occlusions
- 6 leaks

**EQUIPMENT**

- Defective device
- Intrinsic lack of resistance

**MATERIALS**

- Active substance
- Infusion rate

**CALCULATED VOLUMES: MEAN ± STANDARD DEVIATION (mL)**

<table>
<thead>
<tr>
<th>Device</th>
<th>Water</th>
<th>Dextrose 5%</th>
<th>Dextrose 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate (mL/h)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plain tube</td>
<td>19.99</td>
<td>49.79</td>
<td>19.90</td>
</tr>
<tr>
<td>± 0.29</td>
<td>± 0.22</td>
<td>± 0.21</td>
<td>± 0.31</td>
</tr>
<tr>
<td>CytoBolus Adapter Set®</td>
<td>19.72</td>
<td>50.04</td>
<td>19.74</td>
</tr>
<tr>
<td>± 0.25</td>
<td>± 0.25</td>
<td>± 0.15</td>
<td>± 0.39</td>
</tr>
<tr>
<td>PhaSeal®</td>
<td>19.21</td>
<td>49.80</td>
<td>19.82</td>
</tr>
<tr>
<td>± 0.29</td>
<td>± 0.29</td>
<td>± 0.32</td>
<td>± 0.62</td>
</tr>
</tbody>
</table>

**OCCLUSIONS LEAKS**

Unsafe administration