Blood Gas Analysis on Penile Samples

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CASE DESCRIPTION

A 25-year-old male patient presented to the emergency department with a sustained erection (12 h) with severe pain. He had taken ibuprofen and showered with cold water with no improvement. His medications included bupropion and trazodone. The results from 2 consecutive blood samples (18 min apart) drawn from his penis are shown below:

Table 1. Blood gas results from penile samples.

<table>
<thead>
<tr>
<th></th>
<th>First sample</th>
<th>Second sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.92</td>
<td>7.04</td>
</tr>
<tr>
<td>PO₂, mmHg</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>PCO₂, mmHg</td>
<td>105</td>
<td>89</td>
</tr>
</tbody>
</table>

QUESTIONS

1. Is penile blood gas the right sample for the patient’s condition?
2. What is the clinical significance of obtaining 2 consecutive samples?
3. What is the likely cause of the patient’s medical condition?

Answers are below.

ANSWERS

Penile blood gas can aid in the determination of the subtype of priapism to further guide treatment. A pH <7.25, PO₂ <30, and PCO₂ >60 indicate low-flow (ischemic) priapism, which needs to be treated immediately by administration of phenylephrine and draining of blood from the penis. High-flow priapism (1, 2) is usually self-limiting. The sequential samples were obtained to determine the effectiveness of the treatment in improving oxygenation within the penis, indicated by increased PO₂ (1, 3). Trazodone was likely the cause (4).

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References