Pain scores for venipuncture among ED patients

Pain has become the fifth vital sign and it must be evaluated not only in the context of a pathophysiological condition but also as a result of a health intervention [1]. However, there are very few studies that have addressed iatrogenic pain related to the application of routine procedures at the ED in adults.

Blood sample collection or parenteral drug administration are some of the most common ways of induction of iatrogenic pain although procedural pain is often underestimated and, therefore, insufficiently prevented in patients who go to the ED [2].

Because of this, we have read the correspondence letter to the editor by Marco et al. [3] with interest. In the same way as them, we are currently researching the perception of pain related to emergency nursing procedures and exploring its associated factors.

Our prospective observational study (the DIASURE project) is being carried out in two hospitals of the Basque Country (Spain), one of them located in a metropolitan city and the other one in the suburbs. The study consecutively includes ED patients in need of a peripheral venous catheterisation, aged 18 to 85 with scores from III to V on the Manchester Triage System. Patients who scored lower than 15 points on the Glasgow Scale are excluded, same as subjects who present behavioral or cognitive disorders and those with communicative barriers or who are under the effect of depressive drugs. Immediately after the venipuncture, the patients are asked to rate their self-perception of the pain on a 0 to 10 point scale (NRS-11 scale). The methodology for this study was approved by the Clinical Research Ethics Committee of the Basque Country.

From July to December 2016 475 patients were included, where 50.5% were men, and the mean (± standard deviation) age was 55.7 (±19) years old. 54.1% came from suburban areas (villages with 25 000 inhabitants or lower).

Table 1

<table>
<thead>
<tr>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, female</td>
<td>235</td>
</tr>
<tr>
<td>Origin, metropolitan</td>
<td>218</td>
</tr>
<tr>
<td>Age, ≥65 years old</td>
<td>180</td>
</tr>
<tr>
<td>Puncture location</td>
<td></td>
</tr>
<tr>
<td>Hand/wrist</td>
<td>105</td>
</tr>
<tr>
<td>Forearm</td>
<td>80</td>
</tr>
<tr>
<td>Elbow flexure</td>
<td>290</td>
</tr>
<tr>
<td>Needle gauge</td>
<td></td>
</tr>
<tr>
<td>22G</td>
<td>99</td>
</tr>
<tr>
<td>20G</td>
<td>346</td>
</tr>
<tr>
<td>18G</td>
<td>30</td>
</tr>
<tr>
<td>Difficulty of the technique</td>
<td></td>
</tr>
<tr>
<td>Easy</td>
<td>373</td>
</tr>
<tr>
<td>Moderate</td>
<td>84</td>
</tr>
<tr>
<td>Difficult</td>
<td>18</td>
</tr>
<tr>
<td>Venipuncture pain, &gt;3 points</td>
<td>150</td>
</tr>
</tbody>
</table>

95.4% of the catheterizations were achieved on the first attempt and 78.5% of the venipunctures were rated as “easy” by the nurse practitioner. The mean baseline pain was 4.1 (± 3.5) points and venoclysis-associated pain was 2.8 (± 2.2). The rest of the socio demographic and procedural characteristics are shown in Table 1.

We observed a positive correlation between baseline pain and iatrogenic pain (p = 0.02), but not between age and venipuncture-related pain (p = 0.86). The pain score was higher when the technique was considered “moderate or high difficulty” rather than “easy” (3.5 ± 2.7 vs 2.6 ± 2.3; p = 0.002). Patients from suburban areas scored pain lower than those from metropolitan areas (2.6 ± 2.1 vs 3 ± 2.3; p = 0.01). No statistically significant differences were found between needle gauges (p = 0.1), puncture locations (p = 0.8) or patient’s gender (p = 0.6).

These are preliminary results of our in-progress project, which seems quite similar to the data shown by Marco et al. In addition to venipunctures, we are also exploring the pain experiences associated with other techniques, such as arterial puncture for blood gas analysis or intramuscular injections. A better understanding of the painful effects of nursing procedures and their associated factors could help us to determine when and how to act in order to mitigate this undesirable effect, since it has been agreed that pain scores higher than 3 on the NRS-11 scale should not be allowed [2]. The monitoring and control of pain is not only an obligation due to humanitarian issues, but a compulsory task of the healthcare team to reduce the patients’ morbidity and discomfort during their stay in the emergency department.

To sum up, in our sample the pain from the peripheral venous catheterisation technique can be described as mild. The difficulty of the puncture technique, the baseline pain and the origin of the patient seem to influence the perception of the pain associated with venipuncture.

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To the Editor:

We congratulate the authors on their related study to identify perception of pain related to emergency nursing procedures. This data confirms the individual variation in perceived pain from emergency procedures, and its association with baseline pain. Continuing to advance knowledge regarding pain and related factors is an important step towards improved pain management in the ED.

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http://dx.doi.org/10.1016/j.ajem.2017.01.044

Glucagon for refractory asthma exacerbation: Friend or foe?

Keywords:
Intravenous glucagon
Asthma exacerbation
Emergency department
Non invasive ventilation
Mechanical ventilation

To the Editor,

We read the article titled ‘Glucagon for refractory asthma exacerbation: a case series’ by Cavallari et al. [1] with great interest. They presented three patients’ four emergency department (ED) visits with asthma exacerbations which were treated with intravenous (i.v.) glucagon. Effect of glucagon in asthma exacerbation is controversial as some studies found beneficial effects of i.v. glucagon [2] while the others not [3]. Although its efficiency has been showed on mice; there is not enough experience in humans [4]. In this line, we would like to emphasize some practical and controversial points regarding in the treatment strategies and responses to asthma exacerbation.

The first patient, 39 year-old man with history of asthma who admitted to ED active wheezing and chest pain was treated with 3 mg i.v. glucagon in addition to albuterol-ipratropium, methylprednisolone and i.v. magnesium and epinephrine. Additionally non invasive ventilation (NIV) was initiated and his respiratory status improved after NIV. His persistent wheezing despite NIV was treated with the second dose of epinephrine and albuterol. Patient seems to benefit from NIV and additional doses of epinephrine and albuterol instead of glucagon. However, results of NIV in asthma have been evaluated in a recent retrospective cohort study and NIV was found to be associated with a lower inpatient risk of dying (risk ratio, 0.12; 95% CI, 0.03–0.51) and shorter lengths of stay (4.3 d less; 95% CI, 2.9–5.8) than invasive mechanical ventilation (IMV) [5].

Second patient, 59 year-old woman with presenting with acute distress and audible wheezing was treated with albuterol-ipratropium, methylprednisolone, i.v. magnesium, terbutaline, metoclopramide and 2 mg i.v. glucagon. Despite she had benefit from these interventions; it is difficult to attribute these effects to glucagon because all drugs were initiated at the same time.

Third patient was admitted to ED twice. Glucagon treatment was initiated in both first and second ED visit of third patient in addition to standard treatment and NIV therapy. As mentioned in the article patient did not improve after glucagon administration at first visit. She stabilized with standard treatment plus glucagon at the second visit after vomiting and again raised doubts for glucagon treatment effectiveness.

Last, but not least, adverse effects of glucagon include nausea and vomiting. Up to 50% of the patients can suffer from nausea [2]. There is a potential risk of aspiration especially in patients with altered mental status due to asthma attack and in patients receiving NIV therapy during asthma attack.

Glucagon therapy with unclear effects may be alternative intervention in asthma attacks which does not resolve with standard treatment in ED. Therefore, we consider that further prospective clinical trials with more precise definition and criteria for glucagon use need to be evaluated.

Conflict of interest

Authors declare no conflict interest.

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22 November 2016

http://dx.doi.org/10.1016/j.ajem.2016.12.053

Abbreviations: ED, emergency department; i.v., intravenous; NIV, non-invasive ventilation

References