THE PREVALENCE OF DIFFICULT PERIPHERAL INTRAVENOUS ACCESS (DIVA) AFTER HOURS IN A TERTIARY REFERRAL HOSPITAL IN AUSTRALIA

A retrospective clinical audit

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INTRODUCTION

• Difficult peripheral intravenous cannulation (PIVC) outside of normal working hours can be problematic due limited resources available to support afterhours staff performing this procedure.

• The prevalence and significance of DIVA afterhours at the RBWH is currently unreported

• To evaluate the prevalence of patients with DIVA afterhours

• To identify inefficiencies created by the current escalation system (number of attempts made, time delays to treatment and patient experience)

• To quantify the burden DIVA creates for clinicians and patients afterhours

METHOD

• A Retrospective clinical audit of all afterhours PIVC requests, across medical and surgical wards over three months (September to November) in 2019 at the RBWH. RBWH Human Research Ethics Committee Ref No: LNR/2020/QRBW/63558

• Data source: Requests between 2030hr to 8000hr registered through electronic task management system (Patient Flow Manager®).

OBJECTIVES

• To evaluate the prevalence of patients with DIVA afterhours

• To identify inefficiencies created by the current escalation system (number of attempts made, time delays to treatment and patient experience)

• To quantify the burden DIVA creates for clinicians and patients afterhours

RESULTS

<table>
<thead>
<tr>
<th>Month</th>
<th>&quot;Difficult&quot; noted in request</th>
<th>Difficulty during insertion</th>
<th>≥ 2 more failed attempts</th>
<th>Need for escalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>16</td>
<td>36</td>
<td>22</td>
<td>27</td>
</tr>
<tr>
<td>October</td>
<td>9</td>
<td>16</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>November</td>
<td>6</td>
<td>31</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>81</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>

Staff Position | Frequency of success on escalation (%) |
----------------|----------------------------------------|
Vascular access nursing specialists | 29 |
Registrars | 22 |
Junior medical officer | 21 |
Nursing staff | 14 |
Other health-care staff | 12 |
Senior medical officer | 2 |

DIVA criteria:

• "Difficult" documented in request for PIVC
• "Difficult" recorded relating to PIVC insertion.
• 2 or more documented failed PIVC attempts
• A referral outlining the need for assistance documented in the medical record

RESULTS

• 561 patients were eligible and 22% (n=121) of them met at least one DIVA criteria

• Median delay in medical therapy for DIVA patients was 225mins (IQR 119-473mins)

• 48% (n=58) of DIVA patients required the attendance of a second staff member for assistance.

• Where documented 50% (n=26) of DIVA patients required 3 or more cannulation attempts to establish intravenous access.

• Medical records indicated 10 patients refused further attempts, 2 requested a more experienced staff member attend; and 1 requested ultrasound assisted insertion

CONCLUSION

• DIVA is a commonly encountered problem by junior medical staff inserting PIVCs afterhours.

• Escalation and repeated attempts relying on the same traditional landmark/palpation approach leads to inefficiencies such as delays in patients receiving prescribed medical therapies.

• These results support the need for additional training and resources being provided to all afterhours staff who are likely to encounter patients with DIVA with the aim of reducing the burden DIVA creates for patients, staff and the institution.

Table 1: Distribution of patients meeting DIVA criteria by month
Table 2: Position of staff who inserted PIVC in DIVA patients that were escalated (N=55)