The impact of different recovery positions on the perfusion of the lower forearm and comfort

Sponsor(s): Centre for Evidence-Based Practice, Belgium

STUDY DESCRIPTION

Introduction: A side-lying recovery position is recommended when victims are unresponsive but breathing normally and, hence, do not require cardiopulmonary resuscitation. In 2021, the European Resuscitation Council (ERC) and the Belgian Red Cross-Flanders issued new guidelines which included the description of a modified recovery position to avoid problems in victims with joint stiffness and to overcome potential obstructed venous return in the dependent arm. Based on good practice insights, the dependent arm will now be extended and not bent to support the other arm. However, there is currently no evidence available to support a specific recovery position.

Objectives: The aim of this study is to assess the impact of different recovery positions on perfusion of the forearm and associated comfort.

Methods: In this cross-over randomized controlled trial, 24 healthy volunteers will be placed in either the lateral recovery position with extended dependent arm or with bent arm, and in the other position thereafter. Before and between both recovery positions, the volunteers will be positioned supine for 15 min. Several perfusion indices of the forearm will be non- or mildly invasively monitored in the respective recovery positions by radial artery tonometry, ulnar artery echo doppler and venous congestion plethysmography. Subjective participant's discomfort and pain will be assessed as well. Differences in continuous outcomes between the different recovery positions will be assessed with paired t-tests or wilcoxon signed-rank test.

Discussion: The benefit of lateral positioning of adults and children with decreased level of consciousness has been widely accepted despite limited supportive scientific evidence. We here will provide direct evidence (i) whether venous drainage in the dependent limb is impaired when positioning the victim in the lateral recovery position with bent arms and (ii) whether this potential complication can be minimized by extending the dependent arm. The major limitations of this study is that healthy volunteers, instead of non-responsive victims, are included as participants, and that the study will be performed in a highly controlled environment. Nevertheless, the generated insights will directly fuel evidence-based treatment recommendations regarding the recovery position in first aid settings, and fill a current gap in evidence.

RECRUITMENT

Participant profile

- All

Medical condition (targeted specialty)

Research domain
- Unconsciousness

Selection criteria

Inclusion Criteria:
-healthy volunteers

Exclusion Criteria:

Health history of any coronary or peripheral vascular disease such as Raynaud's disease or thromboangitis obliterans (self-declared)
Type I or type II diabetes (self-declared)
Intake of cholesterol-lowering medication (self-declared)
High blood pressure (systolic blood pressure > 140 mmHg and/or diastolic blood pressure > 90 mmHg) and/or use of antihypertensive drugs (self-declared)
Obesity (BMI > 30 kg/m²)
Smoking or using tobacco products (self-declared)

Cohorts

<table>
<thead>
<tr>
<th>Name</th>
<th>Medical condition</th>
<th>Treatment</th>
<th>Recruitment status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lateral side-lying recovery position with extended arm</td>
<td>Data not available</td>
<td>The lateral side-lying recovery position with extended arm is directly based on the revised 2021 ERC guidelines recommending to extend the dependent arm and placing it next to the creased upper lying arm, which supports the head.</td>
<td>Unknown</td>
</tr>
<tr>
<td>Lateral side-lying recovery position with bent arms</td>
<td>Data not available</td>
<td>In the lateral side-lying recovery position with bent arms, the elbow of the dependent arm will now be bent with palm up and the far knee still flexed.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

LOCATIONS AND CONTACTS

Main location

ANTWERP UNIVERSITY HOSPITAL
EDEGEM, ANTWERPEN
Local recruitment: OPEN
Contact details for recruitment
Data not available
Researchers
Data not available

Date: 27/07/2024 22:15:15