From December 2008 onwards, in our hospital (a tertiary level referral trauma centre), the ECLS team was alerted on 35 clinical scenarios and applied ECLS in 20 adult trauma patients [mean age 44.2 (16.2) yr (range 15–69)] with severe refractory cardiopulmonary failure. In four patients, the ECLS treatment failed due to inability to maintain adequate ECLS blood flow and patient perfusion.

From clinical evaluation data, we have identified that ECLS suitability was successfully obtained in patients with pre-implantation significantly lower injury severity score, lower blood lactate level, lower blood units transfused, and significantly higher pH and Hb concentration. The receiver operating characteristic curves were used to dichotomize continuous variables based on a cut-off value, corresponding with the highest Youden index. These cut-off values were used successively to identify independent predictors of unsuitability and unsuccessful ECLS treatment with univariate and multivariate analysis: the parameters with highest negative impact were blood lactate level >14.4 mmol litre \(^{-1}\), blood pH <7, and injury severity score >63. Interestingly, no ultrasonography or haemodynamic parameter contributed significantly to the prediction of ECLS success or failure (Table 1).

In the patients efficiently supported by ECLS, cardiac index, mean arterial pressure, blood lactates concentration, \(PaO_2\), \(PaCO_2\), and \(pH\) showed quick significant improvement with normal values reaching at 3.2 (14) h.

From our data, ECLS seems to be a valuable option to resuscitate severe trauma patients with refractory cardiopulmonary failure when conventional therapies are insufficient: it is safe, feasible, and effective in providing haemodynamic support and blood gas exchange and could be lifesaving when it is promptly initiated in a specialized centre.

In our view, advanced management of poly-trauma patients should include ECLS in the case of refractoriness of the clinical conditions to conventional treatments and if no predictor of ECLS failure is present.

Furthermore, our data was able to identify strong predictors of ECLS non-suitability and unsuccessful in poly-traumatized patients: this might be helpful in deciding whether the ECLS should be implanted, explicitly in patients who are severely complex and compromised.

Future improvements in materials and techniques are expected to make ECLS even easier and safer to manage, leading to a further extension of its use in disastrously injured patients.

### Declaration of interest

None declared.

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### Unexpected benefit of videolaryngoscopy

Editor—The use of videolaryngoscopy, while increasingly established and gaining popularity, has not yet become the ‘gold standard’ for managing tracheal intubation.

Videolaryngoscopy may have a number of benefits including improved view of the larynx (especially in the obese), and decreased rates of difficult laryngoscopy and successful intubation when direct laryngoscopy fails.\(^1\) \(^2\) Videolaryngoscopy is also a helpful tool when managing a predicted difficult airway.\(^3\)

### Table 1  Multivariate analysis (multivariate logistic regression stepwise model) of significant predictors associated with ECLS failure revealed by univariate analysis. ISS, injury severity score; SEM, standard error of arithmetic mean; CI, confidence interval

<table>
<thead>
<tr>
<th>Patient’ s data</th>
<th>Regression coefficient</th>
<th>SEM</th>
<th>Odds ratio</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISS &gt; 63</td>
<td>1.45273</td>
<td>0.1754</td>
<td>4.2748</td>
<td>1.373–13.314</td>
<td>0.0407</td>
</tr>
<tr>
<td>pH &lt; 7.01 (mean of last 3 evaluations)</td>
<td>1.97044</td>
<td>0.1716</td>
<td>7.1738</td>
<td>2.480–20.752</td>
<td>0.0137</td>
</tr>
<tr>
<td>Blood lactates &gt; 14.4 mmol litre (^{-1}) (mean of last 3 evaluations)</td>
<td>2.52623</td>
<td>0.69933</td>
<td>12.5063</td>
<td>4.473–34.974</td>
<td>0.0251</td>
</tr>
</tbody>
</table>

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**None declared.**


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In addition to these clinical benefits, videolaryngoscopy has a potential role in training novice intubators. Higher success rates, faster response times, and reduced number of attempts have been reported. This provides a benefit for those learning and in addition reduces the complications for patients undergoing anaesthesia.

The C-Mac videolaryngoscope is now in daily use in our hospital both for intubation and training. We describe an unexpected benefit of using a videolaryngoscope during a training case for routine intubation.

A gentleman, 81 yr, presented for radical nephrectomy. Although a difficult airway was not predicted, a videolaryngoscope was selected as a teaching aid while supervising a novice. While the novice was intubating the patient's trachea, the consultant observed the video screen. The consultant noted a lesion on the posterior left vocal cord and was able to record this (Fig. 1). This image was shown to surgical colleagues who arranged an urgent nasendoscopy and subsequent microlaryngoscopy.

This case demonstrates an additional benefit of videolaryngoscopy in identifying an airway abnormality that may not have been noted by the novice had direct laryngoscopy been used.

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