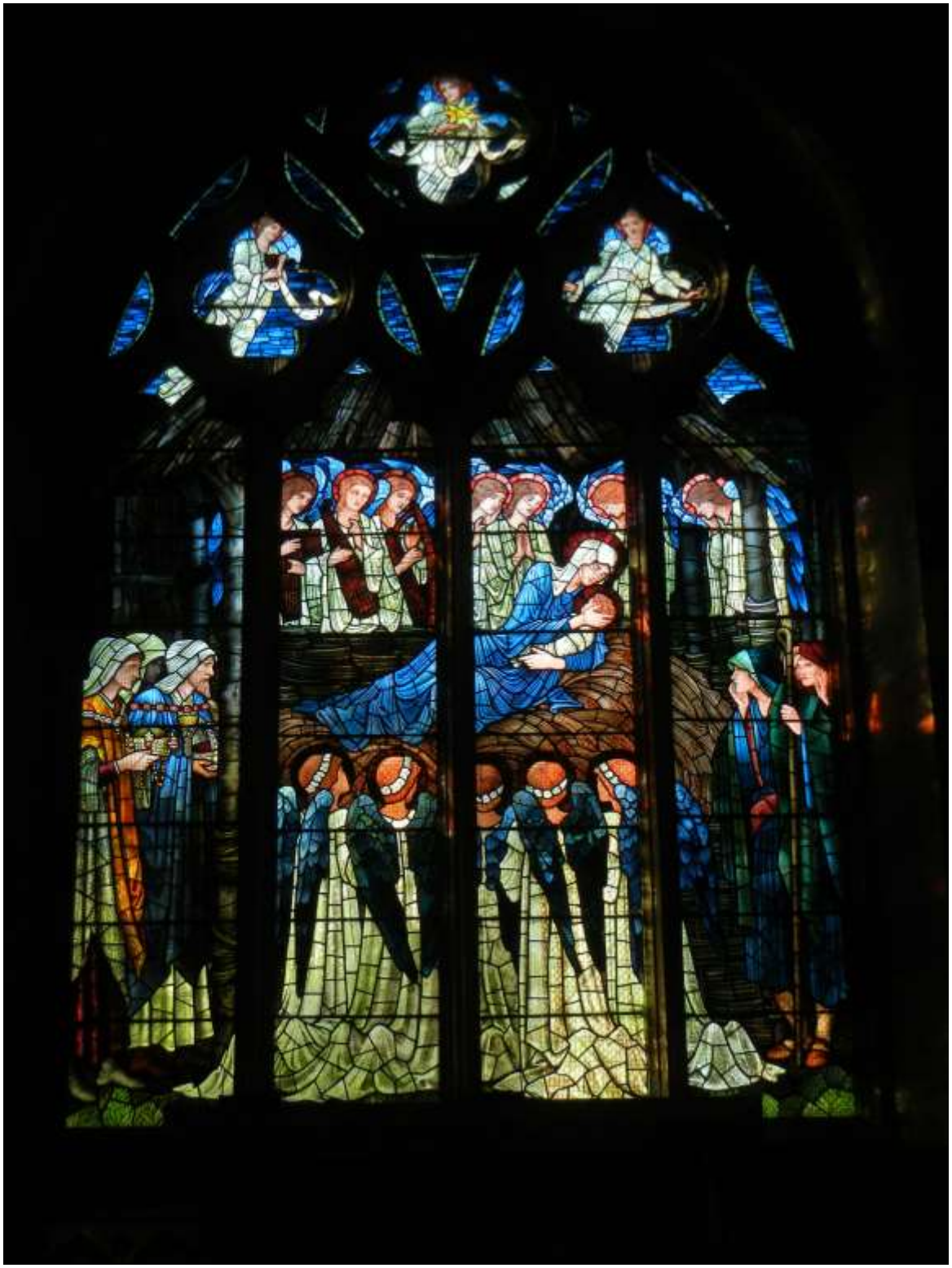
THE NORTHERN HOSPITAL

EXTUBATION



Nativity Scene Magi and Angels, Stained Glass, Edward Burne-Jones, 1898, St Deniol, Hawarden, Wales.

In 1848 a group of like-minded artists founded the Pre-Raphaelite brotherhood They wanted to return to an earlier painting style, before the time of Raphael (1483-1520) as they believed that art had lost its way around the time of Raphael. They were against the staid academic conventions of the time that had been handed down since the time of Raphael - art had become dull, pretentious and sedentary. Raphael's art was too exaggerated, too overly dramatic, and earlier art was less complicated and more modest, more real. The official art academies of the day had rigidly taught that all art should emulate as closely as possible that of the High Renaissance and Mannerism, but the Pre-Raphaelites believed that art had become far too formulaic and far too contrived. They focused on a return to the more "ideal" art of early-mid fourteenth century Italy, known as the Quattrocento. In contrast to the highly academic conventions then prevalent they sought to return to what they saw as the beauty and simplicity of the medieval world, and wanted to recapture what they saw as the ideals of those times. Their art was romantic, colorful, visually beautiful and frequently deeply symbolic. Strong symbolic influences were taken from, classical mythology, Dante Alighieri and Malory's Morte d'Arthur - emphasizing a return to the chivalric values of the age of King Arthur and the Knights of the round table. They also took influence from the works of many of the great poets of their time, Keats, Tennyson and Browning among them. They rebelled against academic traditions vowing to paint only that which was "truthful to nature", which resulted in an emphasis on brilliant, almost photographic detail. The movement was actually more than just painting. William Morris in particular also promoted the relearning of many lost medieval crafts; tapestry, furniture making, wallpapers and especially magnificent stained glass, which Edward Burne Jones excelled at.

The work of the Pre-Raphaelites became less popular in the later Nineteenth century, with the increasing influence of the Impressionists in particular. However with the exhibition of Burne-Jones' great work, "The Death of Arthur in Avalon", during the very darkest days of the First World War in 1916 - the Pre-Raphaelite message of duty and chivalry, that seemed very appropriate to the times, sparked a great revival in interest in the Pre-Raphaelites. Its popularity again declined after the war in the face of an explosion of novel modern genres of painting, but then revived once again in the cultural and sexual revolutions of the 1960s. Today the works of the Pre-Raphaelites are still much admired, and many of the most famous works are now listed among the ranks of the priceless. One of the greatest Pre-Raphaelite painters, was Edward Burne-Jones, (1833-1898), who excelled not only in painting but also in design for stained glass. Oscar Wilde delivered a lecture in New York on the 9th January 1882 on the "Renaissance of Art in England", which involved the Pre-Raphaelite movement in particular. He lauded Burne Jones as a spiritual artist who fiercely opposed the insensitive materialism of the scientific and industrial age. He declared, "I remember once, in talking to Mr. Burne-Jones, about modern science, him saying to me - "the more materialist science becomes, the more angels shall I paint; their wings are my protest in favor of the immortality of the soul".

In the modern age we strive to base all our decisions on the scientific "evidence base", but there are some things that simply defy these attempts - one such example being the indications that predict a successful extubation. There one single absolutely reliable clinical or laboratory criteria for extubation. This decision must of necessity be made on a range of factors including the clinical experience of the physician - and some of this remains an "art" rather than an exact science - a point that the great Edward Burne Jones would have appreciated!

EXTUBATION

Introduction

There is no single reliable clinical or laboratory criterion for extubation.

This decision must of necessity be made on a range of factors including the clinical experience of the physician (though identifying patients for extubation based **solely** on clinical gestalt is also unreliable).

Note that ventilator weaning and extubating are **two distinct** processes.

Upon extubation the patient must be able to:

1. **Protect his/her airway.**

2. Maintain an **effective ventilatory effort.**

3. Maintain acceptable **oxygen saturation and/or blood gas values.**

In general terms:

1. Assess the risk of extubation

2. Test patient readiness for extubation

3. Prepare for extubation.

4. Perform extubation

5. Post extubation care.

Assess the Risk of Extubation

Steps include:

1. Determine disease resolution

    - Criteria to define disease resolution are not defined nor prospectively validated. Clinical judgment will be required.

2. The airway/ intubation was not a difficult one:

    - If so, these patients are best extubated in the ICU

Test patient readiness for extubation

Steps include:

1. Drug reversal:
    - Turn off sedatives
    - Ensure muscle relaxants worn off
    - Absent vasopressors/inotrope requirement.
2. Ensure stable respiratory physiology:
    - PaO_2 > 95 % (on FiO_2 < 40)
    - Not hypercapnic
    - Not acidotic
    - Patient respiratory rate < 30
    - Get patient to cough/ check that FVC is > 12 mls/kg.
3. Ensure stable CVS physiology:
    - SBP > 100 mmHg or MAP > 60mmHg (but not > 200 mmHg).
    - Stable cardiac rhythm/ no evidence of myocardial ischemia
    - Not tachycardic (< 100).
4. Spontaneous breathing trial:

    Minimize ventilatory support (for 15 - 30 minutes):
    - PEEP $\leq$ 5 cm H_2O
    - RR < 4 (i.e ventilator requirement)
5. Ensure adequate mentation:
    - Allow the patient to awaken enough to understand and obey commands
        - ♥ Hold arm in the air for 15 seconds.
    - Adequate pain control.

Prepare for extubation

Steps include:

1. Sit up 45 degrees.

2. Reoxygenate with FiO_2 100 %

3. Have equipment for reintubation/ NIV on hand, in case required.

Palliative extubation can begin at this point

4. Insert oral airway (or bite block)

5. Suction out the oropharynx

6. Suction out the ETT

Perform extubation

1. Apply positive pressure (or ask the patient to take a breath in or wait until the patient has inhaled), then simultaneously cut the ETT tie and the pilot balloon of the ETT.

2. Remove the ETT, as the patient exhales/ coughs.

3. Suction the oropharynx again after ETT removal.

Post extubation care

1. Apply Hudson mask and give oxygen at 8 litres / min

2. Close observation in the Resus Cube for at least 60 minutes.

If respiratory distress occurs a period of NIV will often avert the need for reintubation.

Otherwise a rapid sequence reintubation will be required.

References:

1. Chris Nickson, Extubation Assessment in the ICU, Life in the Fast Lane Website.

2. Scott D. Weingart et al. Trauma Patients can be Safely Extubated in the Emergency Department, Annals of Emerg Med:

    - doi:10.1016/j.jemermed.2009.05.033

3. G. Douros, Austin Emergency Department Extubation Check list, 2015, (*after Weingart et al and www.das.co.uk).*

Dr J. Hayes.

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