IRISH ASSOCIATION FOR EMERGENCY MEDICINE

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TOP 5 STUDIES IN CRITICAL CARE FOR IAEM 2018

SHOC-ED

IN NON-TRAUMA PT'S WITH UNDIFFERENTIATED HYPOTENSION DOES A STANDARDISED POCUS PROTOCOL VS USUAL CARE, IMPROVE 30day OR HOSPITAL SURVIVAL? DIAGNOSES RECORDED AT 0 AND 60MINS

ATKINSON et al. Ann Emerg Med 2018

SOUTH AFRICAN & NORTH AMERICA. 270 PATIENTS. SIMILAR OVERALL SURVIVAL RATES OF 76.5% & 76.1%.
HIGHER MORTALITY IN S.A. HOSPITALS. MUCH MORE SEPSIS IN S.A. (71% VS 42%) AND MORE SEVERE DEHYDRATION IN NORTH AMERICA (20% VS 3%)

SECONDARY OUTCOMES... MEDIAN VOLUME OF FLUIDS INFUSED, HOSPITAL ADMISSION RATES, INOTROPE ADMINISTRATION, CT SCANNING, ICU ADMISSION AND ICU LENGTH OF STAY WERE QUITE SIMILAR...

SO THE ANSWER IS NO... BUT WEAKNESSES INCLUDED: EARLY TRIAL TERMINATION, CONVENIENCE SAMPLING, EXCLUSION OF DEFINITIVE DIAGNOSES LIKE AAA/ECTOPIC, >50% WITH OCCULT SEPSIS & TRIAL MAY NOT HAVE REFLECTED MANY PRACTITIONERS PRACTICE.

IE) NO SIGNIFICANT DIFFERENCES IN FINAL DIAGNOSES IN N.A. OR S.A. COHORT.

PARAMEDIC-2

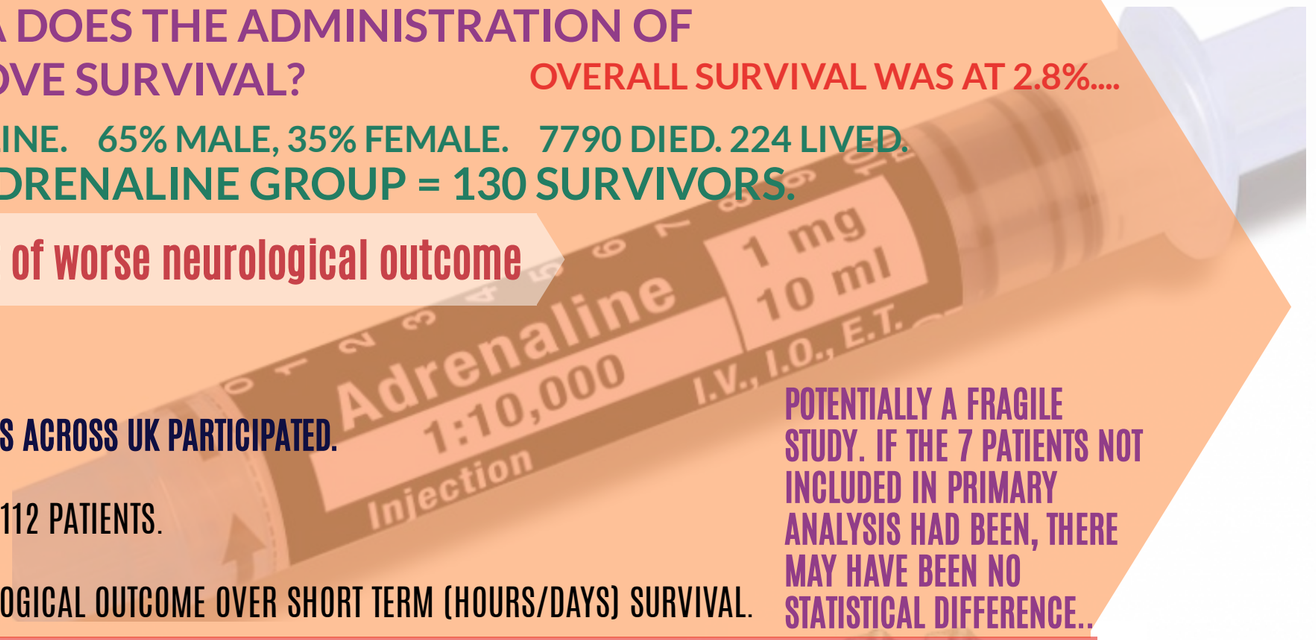
IN ADULT PATIENTS WITH OOHCA DOES THE ADMINISTRATION OF ADRENALINE VS PLACEBO, IMPROVE SURVIVAL? OVERALL SURVIVAL WAS AT 2.8%....

PERKINS et al. NEJM 2018.

8014 PATIENTS INCLUDED, 3999 GOT PLACEBO, AND 4015 GOT ADRENALINE. 65% MALE, 35% FEMALE. 7790 DIED. 224 LIVED.
@30 DAY MARK --> PLACEBO GROUP = 94 SURVIVORS & ADRENALINE GROUP = 130 SURVIVORS.

suggests epinephrine improves 30 day-mortality but it may be at the cost of worse neurological outcome

THIS TRIAL PROVIDES, PROBABLY, THE LARGEST SET OF RCT DATA TO DATE ON THE TOPIC.
GOOD CLINICAL QUESTION - HAS BEEN ASKED FOR YEARS!
MEDIAN TIME OF 6MIN 40SECS FOR AMBULANCE TO ARRIVE. LARGE NETWORK OF AMBULANCE SERVICES ACROSS UK PARTICIPATED.
ADRENALINE OR PLACEBO GIVEN IN MEDIAN TIME OF 21MINS.
TO PREVENT ONE DEATH AT 30 DAYS (IRRESPECTIVE OF NEUROLOGICAL OUTCOME) - YOU NEED TO TREAT 112 PATIENTS.
THE NNT FOR BYSTANDER CPR IS JUST 15 PATIENTS!! THE NNT FOR EARLY DEFIB IS 5 PATIENTS!!
95% OF 280 LAY PEOPLE CONSULTED PRIORITISED LONG-TERM SURVIVAL WITH A FAVOURABLE NEUROLOGICAL OUTCOME OVER SHORT TERM (HOURS/DAYS) SURVIVAL.



POTENTIALLY A FRAGILE STUDY. IF THE 7 PATIENTS NOT INCLUDED IN PRIMARY ANALYSIS HAD BEEN, THERE MAY HAVE BEEN NO STATISTICAL DIFFERENCE..

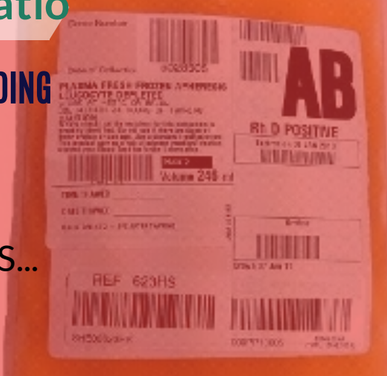
PAMP-ER

In severely injured patients at risk for haemorrhagic shock, does prehospital plasma resuscitation, compared with standard-care resuscitation (not including plasma administration), reduce 30-day mortality?

SPERRY et al. NEJM. 2018

authors concluded that plasma reduced 30day mortality, that it was safe and lowered median PTT ratio

MULTI-CENTRE, RCT, GOOD QUESTION, PRIMARY ANALYSIS ADJUSTED TO ACCOUNT OF PHC CRYSTALLOID AND RBC TRANSFUSION DIFFERENCES - REDUCING CONFOUNDING
RELEVANT STUDY POPULATION THAT REQUIRED TRANSFUSION AND SURGERY... + INTERVENTION WAS RELATIVELY SIMPLE AND COULD BE GENERALISABLE.
EARLY SEPARATION OF KEPLAN-MEYER CURVE = TREATMENT EFFECT MORE PLAUSIBLE.
NO MENTION OF PRE-HOSPITAL USE OF TXA HOWEVER.... AND RESUS PROTOCOLS WERE NOT STANDARDISED....
TOTAL FLUID VOLUMES GIVEN PREHOSPITALLY WERE NOT ACCUMULATED - BUT ARE LIKELY SIMILAR IN BOTH GROUPS...
THERE IS AN UNCLEAR MECHANISM OF ACTION.... BUT A LARGE MORTALITY BENEFIT APPEARS TO INFLUENCE A 8.2% MORTALITY DIFFERENCE BY 24HOURS.
FURTHER BLINDED STUDIES ARE NEEDED TO CONFIRM BENEFIT AND SEE HOW OTHER TRAUMA SYSTEMS FARE.



THERE SEEMS TO INDEED BE A SIGNIFICANT FALL IN MORTALITY IN PATIENTS WITH A HIGH RISK OF BLEEDING WITHOUT SIGNIFICANT INCREASE IN HARM FROM TRANSFUSION

SALT-ED

In non-critically ill adult patients admitted to the hospital from the Emergency Department, does the administration of a balanced salt solution compared with normal saline, reduce hospital free days to day 28?

SELF et al. NEJM. 2018 LOOK AT 'SMART TRIAL' FOR CRITICALLY ILL PATIENTS

authors concluded NO difference in hospital-free days between treatment with balanced crystalloid vs 'normal' saline
However - in secondary outcomes - BC group associated with less 'major adverse kidney events' and more favourable biochemistry results.

Important and relevant Q. Pragmatic design. Over 85% of patients got their allocated intervention. Patient-focused primary outcome.
CLEAR DIFFERENCE BETWEEN DIFFERENT COHORT ELECTROLYTE LEVELS.... SODIUM, CHLORIDE, BICARBONATE AND ACIDAEMIA. Lower chloride, less acidaemia and higher bicarb in BC group)
Minimal baseline imbalances between groups. Good, HIGH-quality data lends itself to being used in future larger trials.

13,347 patients total! 95% of the balanced crystalloid group got Harmann's solution.
No evaluation made of fluid POST hospital administration!!!! ??what really is the impact of 1L of either crystalloid in the ED when looking at hospital stay?
There were fewer patients in the BC group vs Saline.
The type of fluid administered was UNBLINDED. Single study centre.

BOUGIE INTUBATION

In patients admitted to the emergency department with difficult airway characteristics undergoing orotracheal intubation with a Macintosh laryngoscope blade, does a bougie facilitate higher first-attempt intubation success than an endotracheal tube + stylet?

DRIVER. 2018. JAMA

RCT. In 757 adults, bougie use resulted in significantly higher first-attempt intubation success than an endotracheal tube + stylet (96% vs 82%) for those with a difficult airway characteristic.

3768 assessed --> 2938 excluded --> 2785 NOT INTUBATED --> 73 met criteria but not randomised --> 757 enrolled but only 380 had difficult a/w characteristic

This is the best study we have to date examining this issue in ED.
Outcomes were clearly better with the bougie, BUT single-centre study,
The degree to which providers are trained and comfortable with a bougie could significantly impact the generalizability of these results.

?Bias towards bougie/selection bias + protocol violation = 8% of the intubations that were supposed to be done with a stylet were actually done with a bougie, compared to 2% of intubations randomized to a bougie being performed with an endotracheal tube....
this group might be more skilled with the bougie than other groups considering they use a bougie on the first attempt 80% of the time. (Driver 2017)

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