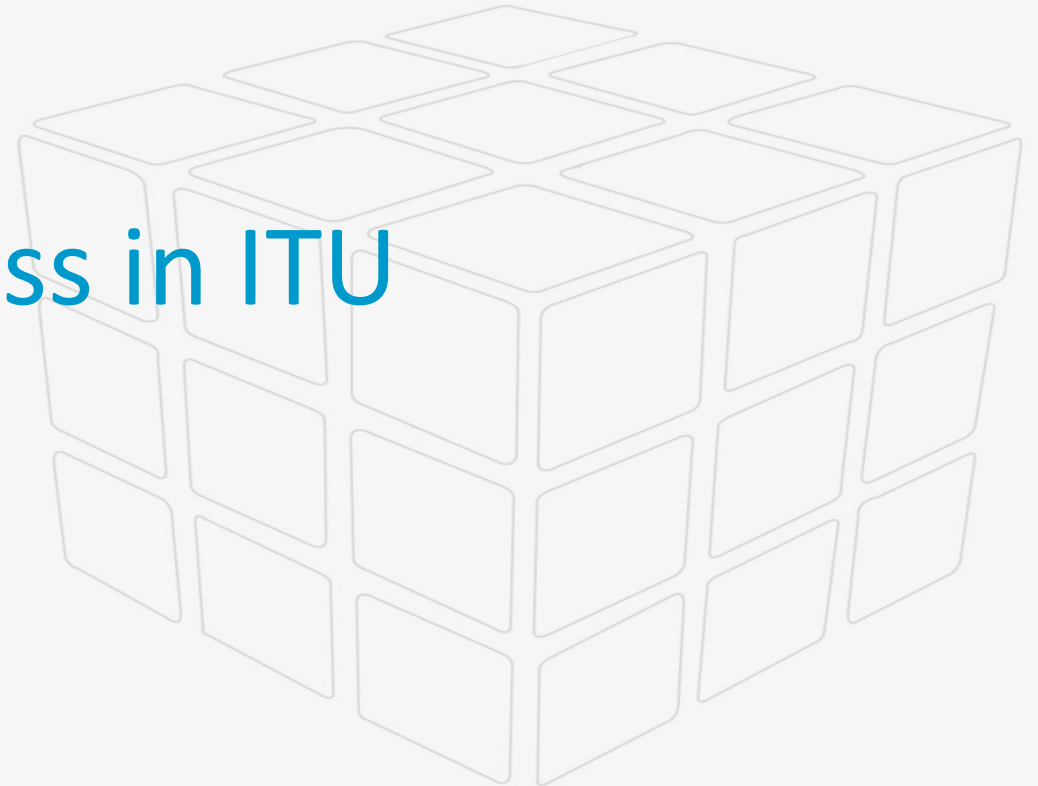


BBTS Annual
Conference 2016

Iatrogenic Blood Loss in ITU

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Trainee ACCP



CONFLICT OF INTEREST



❖ NO CONFLICTS OF INTEREST

BACKGROUND

- Post Graduate Certificate in Non-Medical Authorisation of Blood Transfusion
- Review of an article looking at guidelines for transfusion in Critical Care
- Walsh and McIver (2009) – with weaning patients higher haemoglobin MAY be beneficial
- Comparison of two weaning patients – conversely, the patient with the lower Hb weaned more quickly
- Incidental finding – the patient with the lower Hb still had an arterial line in situ, and was being sampled regularly.



IDEA!

- Small scale study to look at blood loss due to sampling in patients on ICU
- Approached my mentor
- AND, following a discussion with my mentor, a plot of Hb trends in a long-term ITU patient

IATROGENIC

- INDUCED IN A PATIENT
- BY PHYSICIAN/HEALTHCARE PROVIDER/TREATMENT
- USUALLY CARRIES NEGATIVE/UNFAVOURABLE CONNOTATIONS

THE STUDY

- SMALL SCALE
- 16 PATIENTS - MIXTURE OF LEVEL 2 AND LEVEL 3
- MEASURED THE VOLUME OF THE WASTE SYRINGE AND THE GAS SYRINGE FOR AN ARTERIAL BLOOD GAS EACH PATIENT
- ADDED THESE 2 FIGURES TOGETHER AND GOT THE TOTAL LOSS FOR EACH PATIENT FOR AN ABG
- AVERAGE USING BLOOD GAS VOLUME FOR ALL 16 PATIENTS

- LOOKED BACK OVER PREVIOUS 24 HOURS FOR EACH PATIENT
- HOW MANY SAMPLES AND THEREFORE VOLUME FOR EACH PATIENT (USING AVERAGE GAS VOLUME)
- CALCULATED AVERAGE 24 HOUR BLOOD LOSS THROUGH SAMPLING FOR AN ITU PATIENT

ID	WASTE SYRINGE VOLUME (ml)	GAS SYRINGE VOLUME (ml)	TOTAL	
1	1.7	1.5	3.2	
2	2.5	1.2	3.7	
3	2.5	1	3.5	
4	2	2.2	4.2	
5	2.4	1.5	3.9	
6	2.4	1.8	4.2	
7	2.8	1.6	4.4	
8	2.8	1.3	4.1	
9	2.8	1.5	4.3	
10	2.8	1.2	4	
11	5	2.4	7.4	
12	1	0.8	1.8	
13	2.8	1.5	4.3	
14	1.7	1.1	2.8	
15	1.9	1.6	3.5	
16	2.5	1.5	4	
		average blood loss per ABG	3.95625	

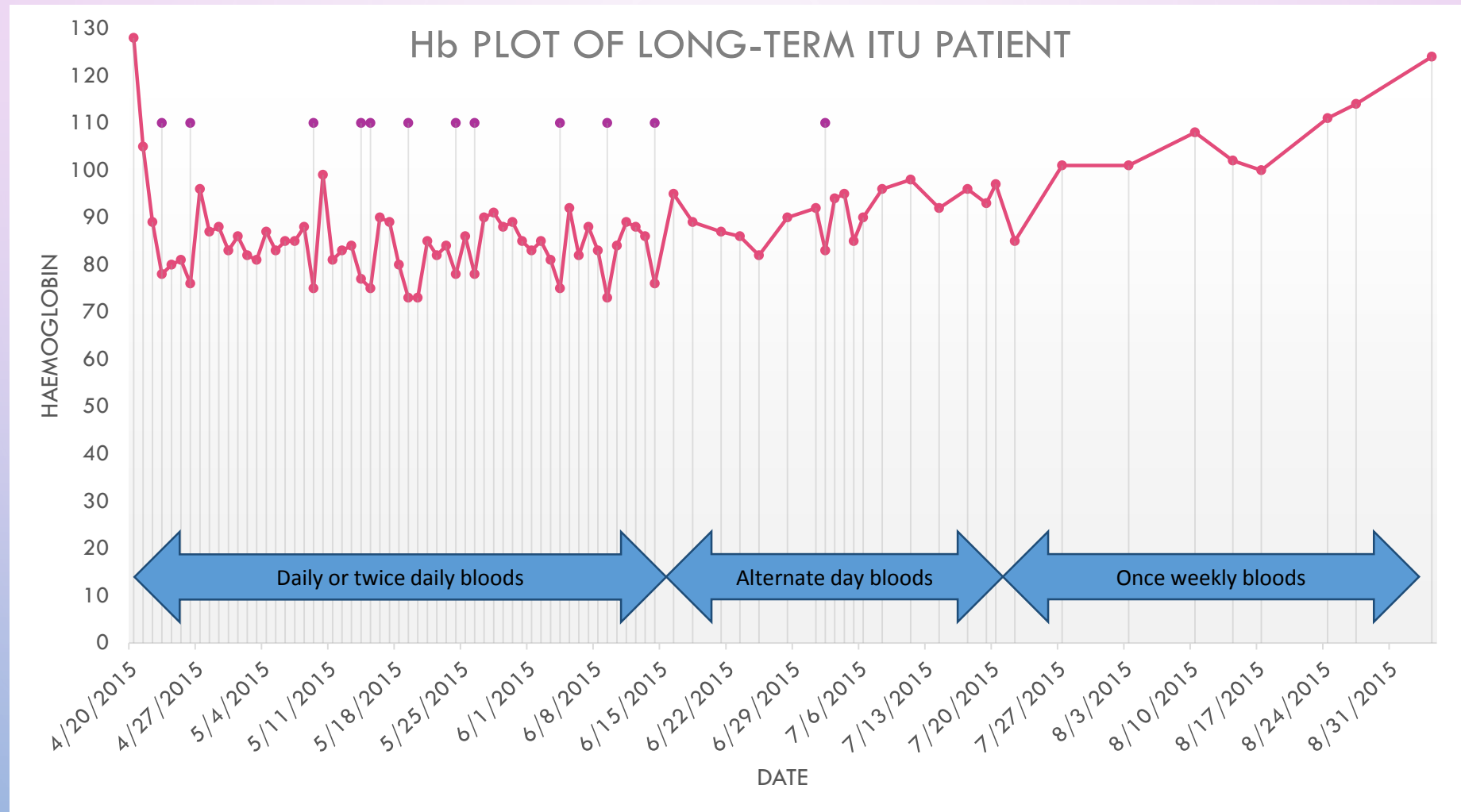
ID	ABG	U&E	FBC	CLOTTING	CULTURES	X-MATCH	TOTAL LOSS (24 HOURS)		VOLUMES
1	8	2	2	2	0	0	52.08	ABG	3.96
2	8	2	2	2	0	0	52.08	U&E	3.5
3	1	1	1	1	1	0	34.16	FBC	4
4	1	2	2	1	1	1	47.66	CLOTTING	2.7
5	6	4	3	3	0	0	57.86	CULTURES	20
6	8	3	3	3	0	0	62.28	X-MATCH	6
7	7	1	1	1	0	0	37.92		
8	5	1	1	1	0	0	30		
9	9	2	2	2	0	0	56.04		
10	8	3	3	3	0	0	62.28		
11	4	1	1	1	0	0	26.04		
12	6	3	3	3	0	0	54.36		
13	7	3	3	3	0	0	58.32		
14	9	2	2	2	0	0	56.04		
15	6	1	1	1	0	0	33.96		
16	4	4	4	4	1	0	76.64		
				AVERAGE BLOOD LOSS (24 HRS)			49.8575		
				MAX			76.64		
				MIN			26.04		
				SD			13.84740626		
				ESTIMATED BLOOD LOSS PER WEEK			349.0025		

	AVERAGE BLOOD LOSS (24 HRS)			49.86
			MAX	76.64
			MIN	26.04
			SD	13.85
ESTIMATED BLOOD LOSS PER WEEK				349.00

- Tarpey and Lawler (1990) mean blood loss 55.7mls/day after first 24 hours
- Vincent, Baron and Reinhart (2002) – mean blood loss 41mls/day; 280 mls/week
- Turek et al (2006) 250mls/ week; 350mls/10 days
- Mahdy et al (2009) in excess of 50ml/day
- Stefanini M (2014) 50-60ml
- Riessen et al (2015) 43.3ml/day

CASE STUDY

- 68 YEAR OLD MALE
- AMSAN VARIANT GUILLAN BARRE SYNDROME
- PMH: COPD, IRON DEFICIENCY ANAEMIA
- TREATED WITH IMMUNOGLOBULINS AND PLASMA EXCHANGE
- ADMITTED TO ITU 20/04/15
- DISCHARGED 31/08/2015



OPTIONS

ALTERNATIVE

SMALL VOLUME TUBES

CLOSED SAMPLING SYSTEM

P.O.C MICROANALYSIS

↓ AMOUNT/FREQUENCY OF SAMPLING

ADVANTAGES

REDUCED BLOOD VOLUME PER SAMPLE

REDUCE THE WASTE VOLUME

SMALL VOLUME



OVERALL ↓ IN TOTAL PT BLOOD LOSS

DISADVANTAGES

SAMPLE INTEGRITY; LABOUR INTENSIVE;
INCREASE RISK OF WRONG RESULTS;
INCREASE RISK OF INACCURACY OF
RESULTS

RISK OF ARTERIAL EMBOLISATION;
INCREASED COST OF TRANSDUCERS

VARIABLE ACCURACY



Tarpey and Lawler (1990) state “One feature of Intensive Care amenable to change is the requirement for multiple blood samples for repetitive arterial blood gas analysis, for regular electrolyte management or for multiple blood cultures” (pg 396).

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