

Cerebral Desaturation Events in Beach Chair Position:

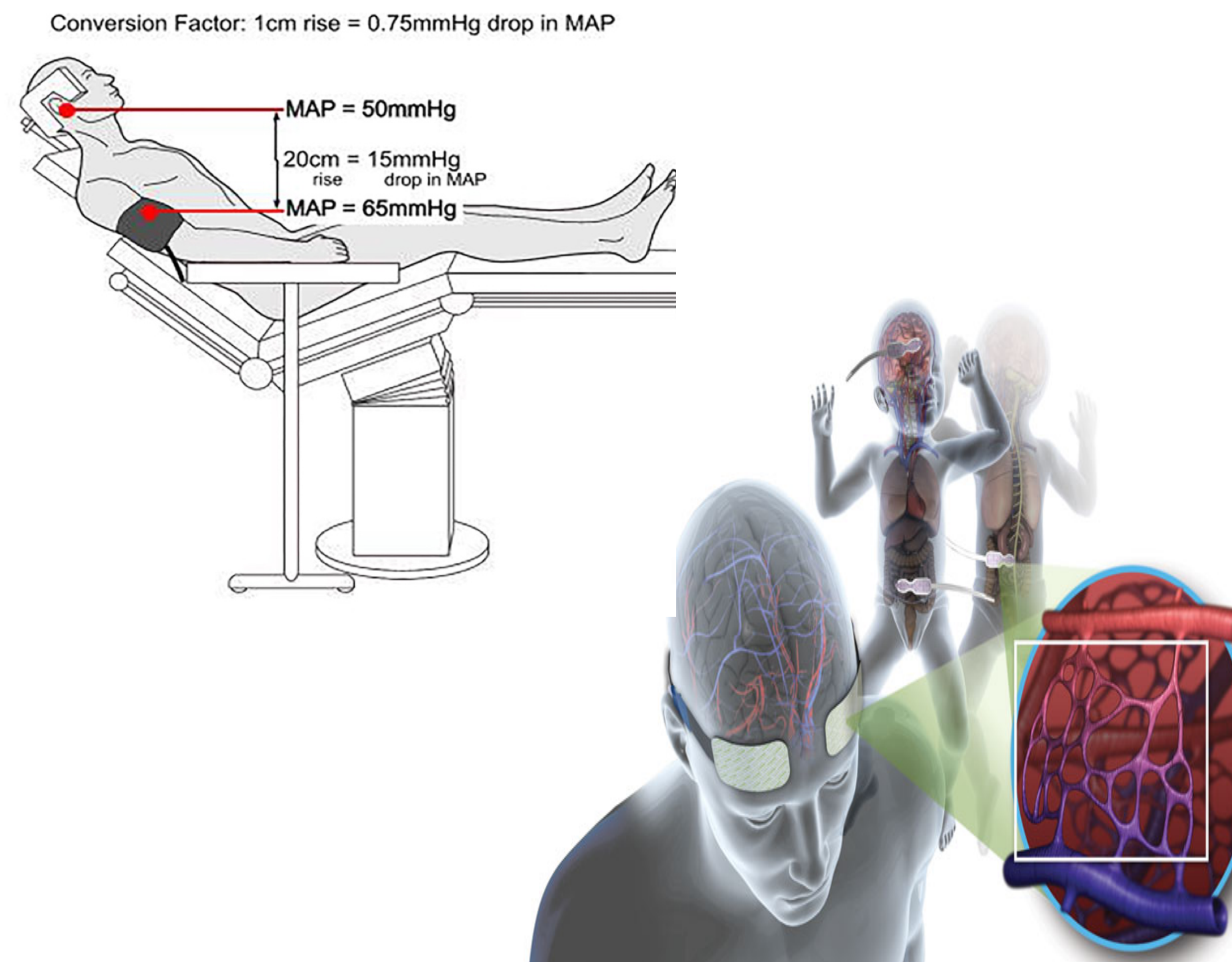
Optimizing the Quality of Care

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Problem

- Cerebral damage may occur as patients in BCP experience hypotension due to various co-factors including: Hypoxia, hypocarbia, anesthetic medications, surgical blood loss, and positioning (elevated head position).
- Standard monitoring devices used by anesthesia providers have proven unreliable in detecting cerebral desaturation events (CDEs).
- CDEs are defined as a 20% or greater decrease in baseline regional tissue oxygen saturation.
- Knowledge deficit regarding management of BCP, namely CDEs, along with the use of cerebral oximetry as a tool for CDE detection.
- What is the most beneficial method to detect and prevent CDEs in the BCP?
- Will a PowerPoint presentation on the use of cerebral oximetry in the BCP increase the knowledge base of ADU SRNAs?



Literature Review

- Severe cerebral desaturation events, brain and spinal cord ischemia, hemiplegia, transient visual loss, and ophthalmoplegia have been documented in patients who had undergone shoulder surgery in BCP (Jeong et al., 2012).
- Reports of four cases of shoulder surgery in BCP resulted in death in one patient and severe brain damage in three patients. Also reported: stroke, brain death, and loss of vision (Kocaoglu et al., 2014).
- At best, standard monitors can only **ESTIMATE** cerebral perfusion; moreover, they are unable to detect cerebral hypo-perfusion and assure the brain is adequately perfused, especially in its early stages (Salazar et al., 2013b).

Methods

- Quantitative approach
- Educational PowerPoint presented to 46 SRNAs at ADU from the class of 2017 and 2018.
- Students willingly completed an informed consent.
- Assessing baseline knowledge, a pre-test of 10 multiple choice questions was given to be completed by the subjects.
- After the presentation, the subjects immediately re-took the same 10 question test (post-test).
- The pre-and post-test results were graded, and the mean test scores were analyzed by Dr. Lukman (ADU's statistician).
- A paired t-test was used to analyze the results

References upon request

Analysis & Conclusions

- Pre-test: mean score of 39.3478%, with a standard deviation of 18.79%, and a standard error mean of 2.77%.
- Post-test: mean score of 77.3913%, with a standard deviation of 18.31%, and a standard error mean of 2.67%.
- The mean increase in scores from the pre-test to the post-test was 38.04%. The obtained t-value was -10.142 ($p < .001$)
- A significant knowledge deficit regarding the management of BCP, namely CDEs, and the use of cerebral oximetry as a tool in caring for patients undergoing procedures in the BCP was verified by the mean pre-test score of only 39.3478%.
- The mean scores between pre-test and post-test increased significantly, concluding that the educational PowerPoint lecture was a successful and necessary aid in reaching the goal of expanding the knowledge base of ADU SRNAs.
- Limitations included: small sample size, short time frame between pre and post-test.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	39.3478	46	18.78559	2.76978
	Post-Test	77.3913	46	18.31026	2.69970

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-Test - Post-Test	-38.04348	25.44009	3.75094	-45.59825	-30.48870	-10.142	45	.000

Findings

- The analyzed results indicated a statistical significance. The PowerPoint presentation did in fact increase the knowledge base of the SRNAs as it pertains to CDEs in the BCP. This increase in knowledge base should better prepare them to safely and competently manage and optimize the care for patients undergoing procedures in the BCP.

Acknowledgements

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