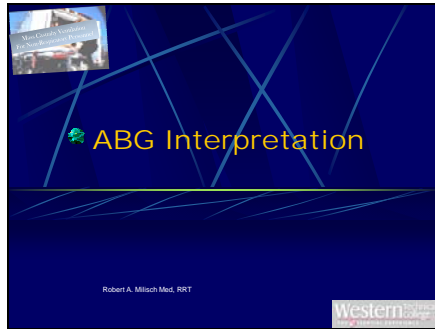


Slide 1



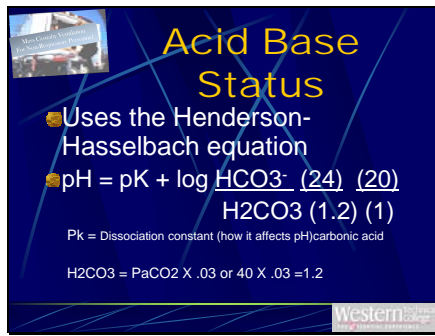
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ABG Interpretation

Robert A. Misch, Med, RRT

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Slide 2



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Acid Base Status

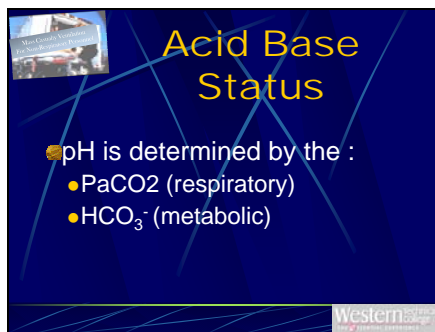
- Uses the Henderson-Hasselbach equation
- $\text{pH} = \text{pK} + \log \frac{\text{HCO}_3^- (24) (20)}{\text{H}_2\text{CO}_3 (1.2) (1)}$

Pk = Dissociation constant (how it affects pH)carbonic acid

$\text{H}_2\text{CO}_3 = \text{PaCO}_2 \times .03$ or $40 \times .03 = 1.2$

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Slide 3



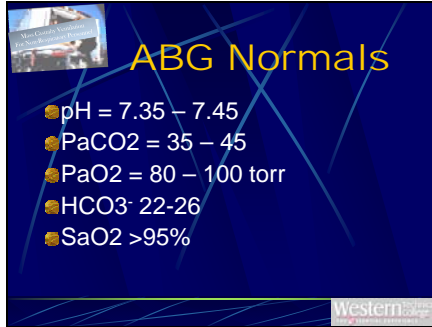
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Acid Base Status

- pH is determined by the :
 - PaCO₂ (respiratory)
 - HCO₃⁻ (metabolic)

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Slide 4

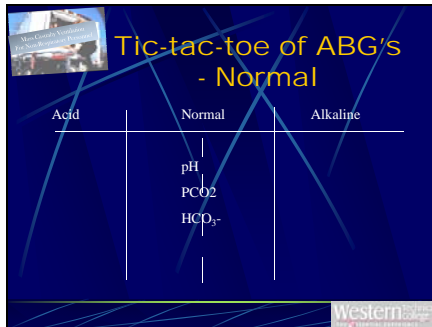


ABG Normals

- pH = 7.35 – 7.45
- PaCO₂ = 35 – 45
- PaO₂ = 80 – 100 torr
- HCO₃⁻ 22-26
- SaO₂ >95%

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Slide 5

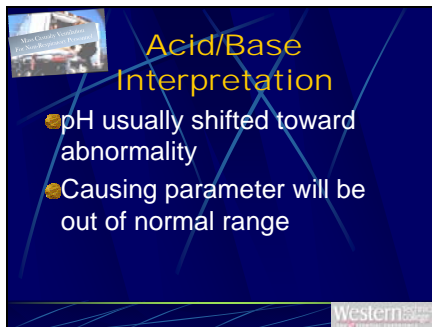


**Tic-tac-toe of ABG's
- Normal**

Acid	Normal	Alkaline
	pH	
	PCO ₂	
	HCO ₃ ⁻	

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Slide 6



Acid/Base Interpretation

- pH usually shifted toward abnormality
- Causing parameter will be out of normal range

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Slide 7

Degree of compensation

- Uncompensated if:
 - Other parameter is in normal range
 - pH is out of range toward causing parameter

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Tic-tac-toe of ABG's - Uncompensated

Acid	Normal	Alkaline
pH (7.30)		
PCO ₂ (56)	HCO ₃ ⁻ (24)	

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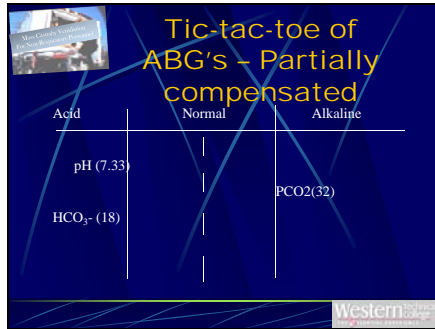
Slide 9

Degree of compensation

- Partially compensated if:
 - Other parameter is out of range in opposite direction
 - pH is still out of range toward causing parameter

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Slide 10



Slide 11

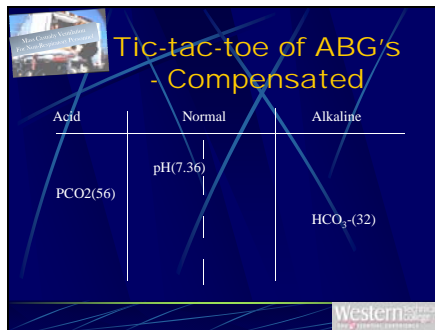
Degree of Compensation

- Compensated if:
 - Other parameter is outside normal range in opposite direction of causing parameter
 - pH is in normal range

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Detailed description: A slide titled 'Degree of Compensation' with a blue background and a small image in the top left corner. It lists criteria for compensated respiratory acidosis: 1. Other parameter is outside normal range in opposite direction of causing parameter. 2. pH is in normal range.

Slide 12



Slide 13

Degree of Compensation

- Combined if:
 - Both parameters are out of range in same direction
 - pH **must** be out of range

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Tic-tac-toe of ABG's - Combined

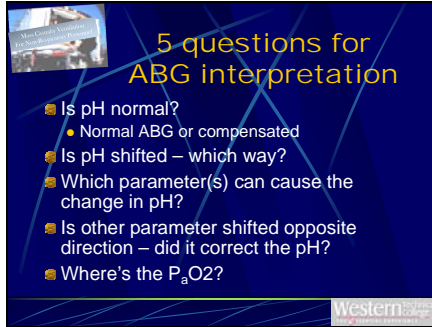
	Acid	Normal	Alkaline
pH(7.25)			
PCO ₂ (48)			
HCO ₃ (18)			

Slide 15

Oxygenation

- Normal = PaO₂ 80-100
- Mild Hypoxemia = 60- 80
- Moderate hypoxemia = 40-60
- Severe hypoxemia = Below 40
- Note: Take 1 torr off normal for every year over 60
- Under 40 is **always** severe

Slide 16

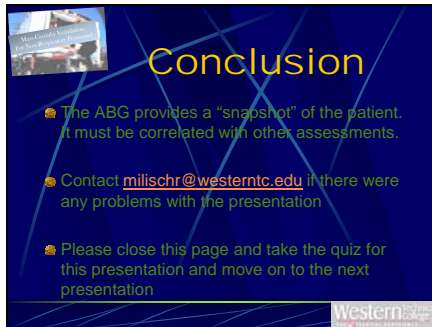


5 questions for ABG interpretation

- Is pH normal?
 - Normal ABG or compensated
- Is pH shifted – which way?
- Which parameter(s) can cause the change in pH?
- Is other parameter shifted opposite direction – did it correct the pH?
- Where's the P_aO_2 ?

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Slide 17



Conclusion

- The ABG provides a "snapshot" of the patient. It must be correlated with other assessments.
- Contact milschr@westerntc.edu if there were any problems with the presentation
- Please close this page and take the quiz for this presentation and move on to the next presentation

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