Fighting Disease with Electronics

NIHON KOHDEN

esCCO Information vol. 3

Intuitive Screen with Hemodynamics Graph **Improving the standard of non-invasive hemodynamic monitoring**

Visualizing Volumetric Information

For quality patient care, comprehensive management of different hemodynamic parameters is crucial.
Nihon Kohden's Hemodynamics Graph provides a more intuitive approach to diagnostic and therapeutic decision making in hemodynamic management. This new tool helps clinicians easily see the direction and trend of hemodynamic change while imaging the Frank-Starling curve, and help to objectively determine the optimal therapeutic strategy based on the Forrester Classification[1].

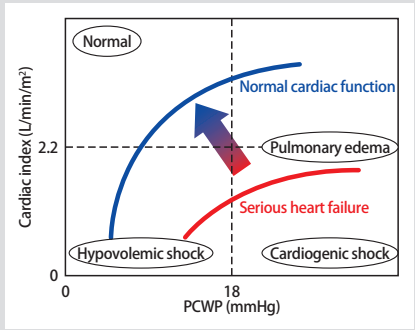

Figure 1 : Forrester Classification

New Hemodynamics Graph

The Hemodynamics Graph is a new monitoring tool which shows overall hemodynamic information. A trendgraph at the top and two target graphs below show the relationship of two hemodynamic parameters.
This screenshot of a Hemodynamics Graph shows the time course of hemodynamic response through the administration of 200 mL of glycerin.

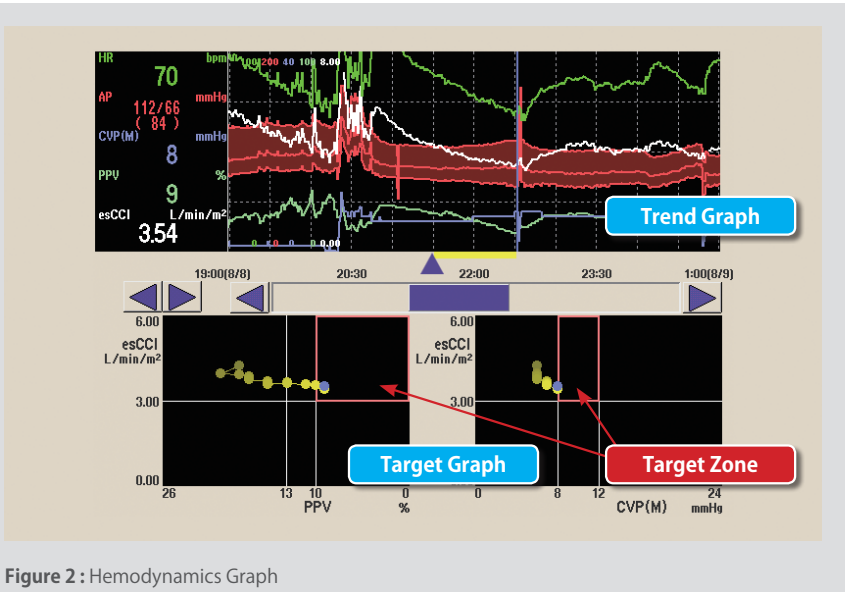

Figure 2 : Hemodynamics Graph

Hemodynamics Graph is available on following NIHON KOHDEN patient monitors

Life Scope VS

Life Scope TR

Life Scope G9

Early Decision Making in Goal Directed Fluid Management

The yellow bar below the Trendgraph in Figure 2 indicates the time interval of the Target Graphs below. The yellow bar starts with a purple triangle which represents the Event Mark recorded at the time of intervention.
In this Hemodynamics Graph screenshot, the traces on both Target Graphs show that hemodynamics is falling within the Target Zones (red boxes) in response to the administration of glycerin.

Target Graph Features

- Preload parameters such as CVP and PPV on the X axis
- Cardiac function parameters such as cardiac index on the Y axis
- Brightness level of the traces and plots shows hemodynamic change over time
- Red target zones show target areas of treatment
- Text-entry for prescribing necessary treatments

Various Combinations of Hemodynamic Parameters

Much evidence supports the idea that goal-directed fluid management guided by several hemodynamic parameters will reduce postoperative hospital stay and complications[2) 3)].
The Hemodynamics Graph displays necessary parameters for fluid optimization therapy in a visually intuitive manner and can help to improve the standard of care with hemodynamic monitoring.
The Target Graphs can show different hemodynamic parameters for different clinical conditions. For example, target graphs for PPV and esCCO (a non-invasive continuous cardiac output monitoring method using ECG and pulse oximeter waveform[4) 5)]) provide minimally invasive hemodynamic monitoring for fluid management. Or, blood pressure and CVP target graphs can support therapy according to the guidelines for initial resuscitation of severe sepsis and septic shock[6)]. Intermittent invasive parameters such as cardiac output by bolus thermodilution and pulmonary wedge pressure can also be used for the Target Graphs.
The Hemodynamics Graph can open up new ways to manage hemodynamics for all care levels more efficiently and effectively.

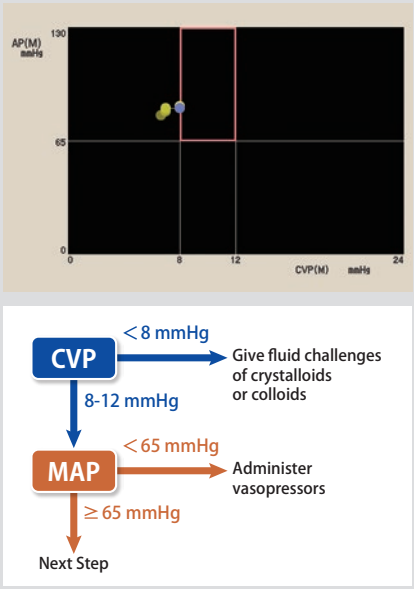

Figure 3 : CVP/MAP target graph and initial resuscitation protocol in severe sepsis and septic shock

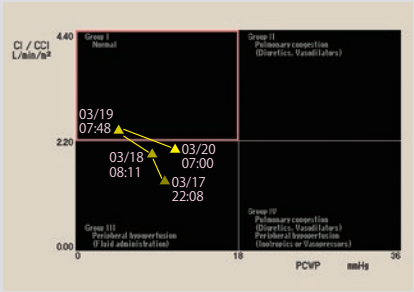

Figure 4 : PCWP/CI target graph

References

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8754 SP61-037A '16. 7. CLB. A

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