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| --- | --- | --- |
|  | Hypovolemia | Hypervolemia |
| Clinical examinations | Sensation of thirst | Shortness of breath |
|  | dry mucous membranes, tongue, oral cavity | swelling of dependent areas (including the lumbar region, sacrum and hands when supine) |
|  | skin turgor – persistence of skin folds – dehydration | stagnation of jugular veins |
|  | pallor (conjunctiva) – anemia | auscultative finding of wet changes in the lungs |
|  | prolongation of capillary return |  |
|  | Marbling on the lower extremities |  |
|  | Oliguria – concentrated urine |  |
| Basic monitoring | tachycardia | tachycardia, rhythm disturbances (atrial fibrillation) |
|  | hypotension  shock index ≥ 0.9 | High CVP |
|  | tachypnea (satisfactory SpO2) | tachypnea, hypoxemia |
| Laboratory markers | hemoconcentration, hypernatremia, higher  protein/albumin | hypoalbuminemia |
|  | high urea value | high BNP, NT-proBNP |
| Chest X-ray |  | interstitial (alveolar edema), Kerley lines |
|  |  | cardiomegaly, thickening of pulmonary arteries |
| ECHO | kissing ventricles | volume overload of both chambers, restrictive filling (expert ECHO) |
|  |  | Hypercontractile left ventricle |
| US IVC | ≤ 1.5 cm; variability with respiratory cycle | ≥ 2.5 cm; absence of respiratory variability |
| US Lung | absence of B lines (max. 2) symmetrically at all points | presence of more than 3 B lines in more than 2 quadrants of the lungs symmetrically |
| Fluid tests  Reactivity\* | positive | negative |
|  | dynamic variability of flow parameters with ventilation – over 15–20% |  |
|  | Passive leg lift test – increase in cardiac output (or equivalent parameters) ≥ 10% |  |
|  | Fluid mini-challenge (100 ml IV) – increase ≥ 5–6% |  |
|  | fluid challenge (500 ml IV) – increase ≥ 10% |  |