ADQI 20 Figures

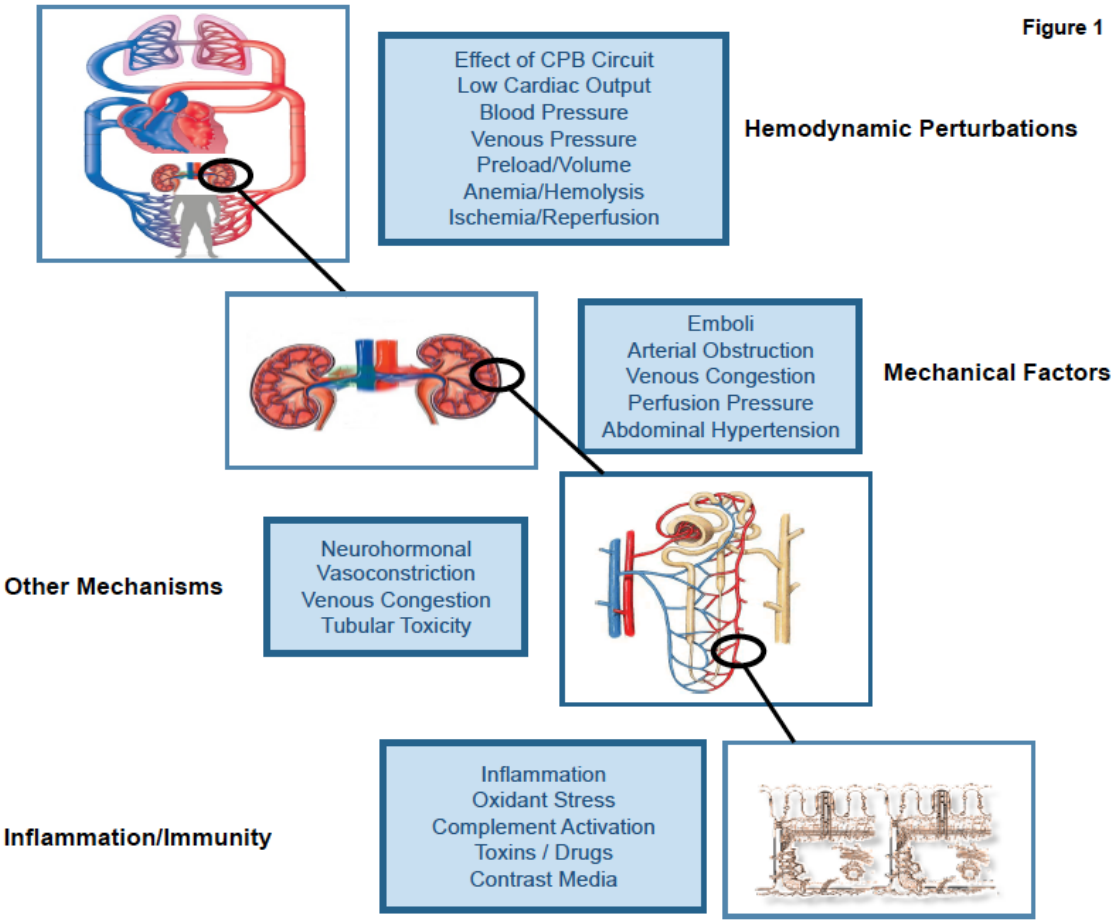

Figure 1 – Major Pathophysiological Mechanisms For The Development of Cardiac and Vascular Surgery Associated AKI. Many common factors contribute to the development of CVS-AKI. Hemodynamic perturbations such as exposure to cardiopulmonary bypass, cross-clamping of the aorta, high doses of exogenous vasopressors and blood product transfusion all increase the risk of AKI. Similarly the mechanical factors outlined may be associated with renal perfusion injury following episodes of ischemia resulting in increased oxidative stress and associated inflammation as well as embolic disease including cholesterol emboli all increase the pathological burden on the kidney. Other mechanisms such as neurohormonal activation are relevant as is the generation of free hemoglobin and liberation of free iron perioperatively all potentiating AKI. Associated tissue damage is reflected in a systemic inflammatory response and all these factors contribute to a significant inflammatory response. Immune activation, the generation of reactive oxygen species and upregulation of proinflammatory transcription factors all play a role.

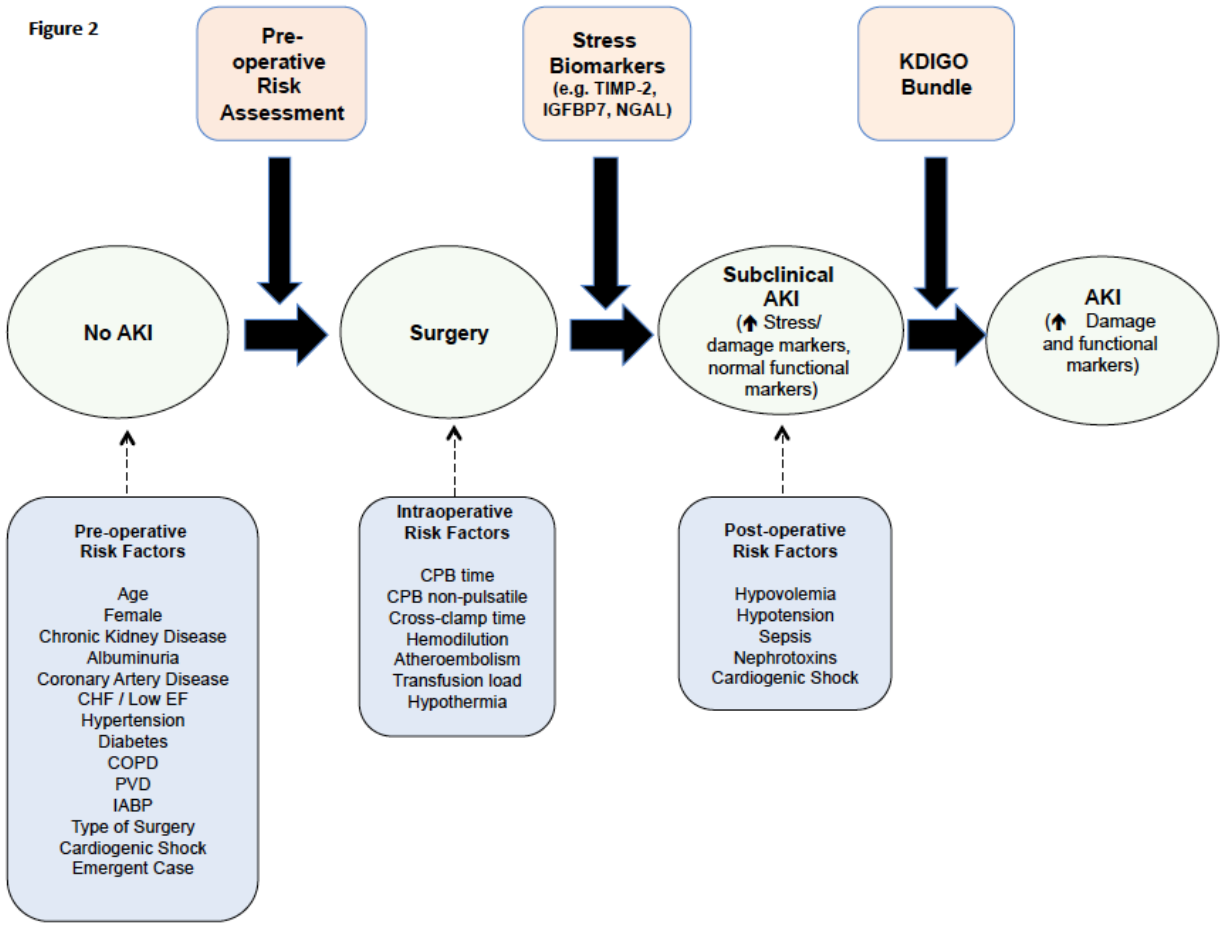

Figure 2 – Risk Assessment for Acute Kidney Injury (AKI) Following Cardiac and Vascular Surgery. This figure provides a framework for the time course of risk assessment for acute kidney injury (AKI) following cardiac and vascular surgery. Risk assessment should be a continual process and repeatedly performed in the pre-, peri- and early postoperative time-course and should incorporate clinical factors and biomarkers if available. Patients deemed to be at high risk for AKI may benefit from the implementation of kidney focused care to improve patient outcomes. KDIGO: Kidney Disease Initiative Global Outcome; CHF: congestive heart failure; EF: ejection fraction; PVD: peripheral vascular disease; COPD: chronic obstructive pulmonary disease: IABP: intra-aortic balloon pump.

Figure 4a

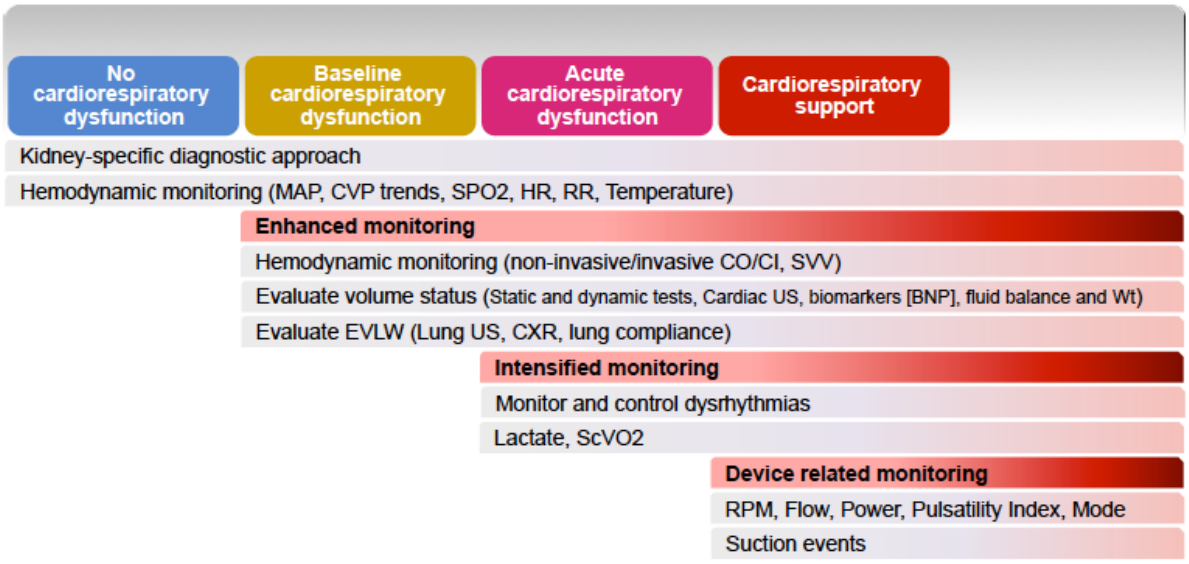

Figure 4a. Cardio-Respiratory Specific Diagnostic Approach. A diagnostic approach which may be applied to the patient who has a cardiorespiratory cause for acute kidney injury (AKI) is shown. The level of intervention is governed by the degree and chronicity of cardiorespiratory dysfunction. MAP: mean arterial pressure; CVP: central venous pressure; SpO_2: peripheral oxygen saturation; HR: heart rate; RR: respiratory rate; CO: cardiac output; CI: cardiac index; SVV: stroke volume variation; US: ultrasound; BNP: brain natriuretic peptide; EVLW: extra-vascular lung water; CXR: chest x-ray; ScVO2: central venous oxygen saturation.

Figure 4b

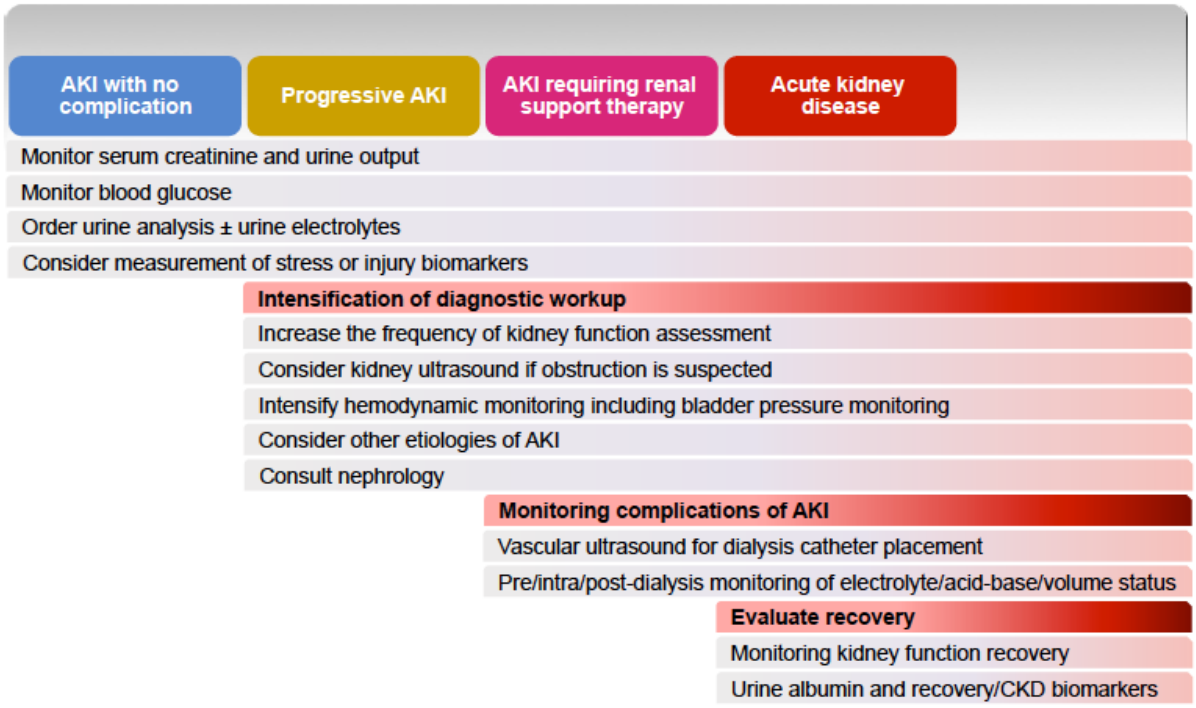

Figure 4b. Kidney-Specific Diagnostic Approach. A diagnostic approach which may be applied to the patient who has a renal-specific cause for acute kidney injury (AKI) is shown. The level of intervention is governed by the degree and duration of renal dysfunction. This is particularly relevant in the post ICU phase where a patient with persistent AKI (>2 or 3 days) or acute kidney disease should be monitored and followed up. CKD: chronic kidney disease.