**Table IVs – Safety-in-hospital complications**

|  |  |  |
| --- | --- | --- |
| **SAFETY-IN-HOSPITAL COMPLICATIONS** |  |  |
| **Strong Outcomes** |  |  |
| **Hemolysis (%)** |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **Impella CP (pts)** | **Impella RP (pts)** | **p value** |
| Monteagudo-Vela [2] 2019 | 57 | 0 | 3 | 2 | 0,091 |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |   |   |
| Mastroianni [4] 2016 | 14 | 0 | 0% | - | - |
| Lima [5] 2016 | 40 | 3 | 8% | - | - |
| Hall [8] 2018 | 58 | 4 | 7% | - | - |
| Chung [9]2019 | 100 | 16/86 | 19% | - | - |
| Bansal [11] 2016 | 24 | 24 | 100% | - | - |
| Esposito [17] 2018 | 19 | 1 | 5% | - | - |
| Bertoglio [15] 2019 | 9 | 1 | 11,1% | - | - |
| Griffith [6] 2013 | 16 | 1 | 6,3% | - | - |
| Gaudard [7] 2015 | 40 | 1 | 3,0% | major hemolysis | - |
| Gaudard [7] 2015 | 40 | 3 | 8,0% | minor hemolysis | - |
| **Bleeding requiring transfusion** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Lima [5] 2016 | 40 | 11 | 28,0% |  |  |
| Hall [8] 2018 | 58 | 9 | 16,0% |  |  |
| Gaudard [7] 2015 | 40 | 7 | 18,0% |  |  |
| **Bleeding requiring surgery** |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **Impella CP (pts)** | **Impella RP (pts)** | **p value** |
| Monteagudo-Vela [2] 2019 | 57 | 3 | 1 | 0 | 0,546 |
| Mastroianni [4] 2016 | 14 | 0 |   | - | - |
| Lima [5] 2016 | 40 | 0 | 0,0% | - | - |
| Hall [8] 2018 | 58 | 0 | 0,0% | - | - |
| Bernhardt [12] 2019 | 22 | 0 | 0,0% | - | - |
| Bertoglio [15] 2019 | 9 | 3 | 33,3% | - | - |
| Griffith [6] 2013 | 16 | 7 | 43,8% | - | - |
| Gaudard [7] 2015 | 40 | 0 | 0,0% | - | - |
| **Bleeding from Impella insertion site** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| David [13] 2019 | 29 | 3 | 10% |  |  |
| **Limb Ischemia** |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **Impella CP (pts)** | **Impella RP (pts)** | **p value** |
| Monteagudo-Vela [2] 2019 | 57 | 0 | 2 | 0 | 0,546 |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |   |   |
| Mastroianni [4] 2016 | 14 | 0 |   | - | - |
| Lima [5] 2016 | 40 | 1 | 3% | - | - |
| David [13] 2019 | 29 | 0 | 0% | - | - |
| Boll [14] 2019 | 22 | 0 | 0% | - | - |
| Griffith [6] 2013 | 16 | 0 | 0% | - | - |
| Gaudard [7] 2015 | 40 | 1 | 3% | - | - |
| **Vascular complication requiring surgery** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Lima [5] 2016 | 40 | 0 | 0,0% |  |  |
| Hall [8] 2018 | 58 | 1 | 2,0% |  |  |
| Griffith [6] 2013 | 16 | 0 | 0,0% |  |  |
| **Device malfuncion** |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** | - | - |
| Lima [5] 2016 | 40 | 4 | 10,0% | - | - |
| Hall [8] 2018 | 58 | 4 | 7,0% | - | - |
| David [13] 2019 | 29 | 1 | 3,0% | - | - |
| Griffith [6] 2013 | 16 | 2 | 12,5% | - | - |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **Impella CP (pts)** | **Impella RP (pts)** | **p value** |
| Monteagudo-Vela [2] 2019 | 57 | 1 | 1 | 0 | 0,651 |
| **Stroke** |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **Impella CP (pts)** | **Impella RP (pts)** | **p value** |
| Monteagudo-Vela [2] 2019 | 57 | 0 | 0 | 0 | - |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |   | - |
| Lima [5] 2016 | 40 | 0 | 0% | - | - |
| Hall [8] 2018 | 58 | 0 | 0% | - | - |
| David [13] 2019 | 29 | 3 | 10% | - | - |
| Boll [14] 2019 | 22 | 0 | 0% | - | - |
| Chung [9] 2019 | 100 | 10 | 10% | - | - |
| Bansal [11] 2016 | 24 | 1 | 4,2% | - | - |
| Bernhardt [12] 2019 | 22 | 6 | 27,3% | - | - |
| Bertoglio [15] 2019 | 9 | 0 | 0% | - | - |
| Griffith [6] 2013 | 16 | 1 | 6,3% | (30 day or discharge) | - |
| **Left Ventricle Perforation** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Mastroianni [4] 2016 | 14 | 0 | 0% |  |  |
| **Aortic Valve Injury** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Mastroianni [4] 2016 | 14 | 0 | 0% |  |  |
| Lima [5] 2016 | 40 | 1 | 3% |  |  |
| Hall [8] 2018 | 58 | 1 | 2% |  |  |
| Boll [14] 2019 | 22 | 0 | 0% |  |  |
| **Dysfunction to the aortic or mitral valve, papillary muscles, chordae or ventricular cavity** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Griffith [6] 2013 | 16 | 0 | 0% |  |  |
| **Aortic Dissection** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Mastroianni [4] 2016 | 14 | 0 | 0,0% |  |  |
| **Device-related injury** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Griffith [6] 2013 | 16 | 0 | 0% |  |  |
| **AKI requiring CRRT** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Gaudard [7] 2015 | 40 | 17 | 43% |  |  |
| David [13] 2019 | 29 | 14 | 48,0% |  |  |
| Mastroianni [4] 2016 | 14 | 2 | 14,0% |  |  |
| Lima [5] 2016 | 40 | 13 | 33,0% |  |  |
| Griffith [6] 2013 | 16 | 3 | 18,8% |  |  |
| **Soft outcomes** |  |  |
| **Vascular complication not requiring surgery** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Lima [5] 2016 | 40 | 0 | 0,0% |  |  |
| Griffith [6] 2013 | 16 | 1 | 6,3% |  |  |
| **Hematoma** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Hall [8] 2018 | 58 | 3 | 5,0% |  |  |
| Bansal [11] 2016 | 24 | 1 | 4,2% |  |  |
| Bertoglio [15] 2019 | 9 | 1 | 11,1% |  |  |
| **Temporary brachial plexopathy** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Bansal [11] 2016 | 24 | 1 | 4,2% |  |  |
| **Transient Median nerve dysfunction** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Mastroianni [4] 2016 | 14 | 2 | 14,0% |  |  |
| David [13] 2019 | 29 | 0/28 | 0,0% |  |  |
| Boll [14] 2019 | 22 | 0 | 0,0% |  |  |
| **Peripheral neurological deficit** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** | 0 |  |
| Bertoglio [15] 2019 | 9 | 1 | 11,1% |  |  |
| **Local infection** |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **Impella CP (pts)** | **Impella RP (pts)** | **p value** |
| Monteagudo-Vela [2] 2019 | 57 | 0 | 0 | 0 | - |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |   | - |
| Mastroianni [4] 2016 | 14 | 1 | 7,0% | - | - |
| Hall [8] 2018 | 58 | 11 | 19,0% | - | - |
| David [13] 2019 | 29 | 1 | 3,0% | - | - |
| Boll [14] 2019 | 22 | 0 | 0,0% | - | - |
| **Surgical site infections** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Gaudard [7] 2015 | 40 | 4 | 10% |  |  |
| **Sepsis** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Griffith [6] 2013 | 16 | 6 | 37,5% |  |  |
| Gaudard [7] 2015 | 40 | 5 | 13,0% |  |  |
| **Device Displacement** |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **Impella CP (pts)** | **Impella RP (pts)** | **p value** |
| Monteagudo-Vela [2] 2019 | 57 | 0 | 1 | 1 | 0,651 |
| Mastroianni [4] 2016 | 14 | 4 | 28,6% | - | - |
| Gaudard [7] 2015 | 40 | 8 | 20,0% | - | - |
| **Pump Thrombosis** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Mastroianni [4] 2016 | 14 | 2 | 14,0% |  |  |
| Bernhardt [12] 2019 | 22 | 1 | 4,5% |  |  |
| Bertoglio [15] 2019 | 9 | 1 | 11,1% |  |  |
| Esposito [17] 2018 | 19 | 1 | 5,3% |  |  |
| **Thrombotic events** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Bernhardt [12] 2019 | 22 | 2 | 9,0% |  |  |
| Gaudard [7] 2015 | 40 | 1 | 3,0% |  |  |
| **Pump exchange** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Bertoglio [15] 2019 | 9 | 2 | 22,2% |  |  |
| **GI Bleeding** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| David [13] 2019 | 29 | 7/20 | 35,0% |  |  |
| **Average RBC trasfusion** |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (mean n. transfusions)** | **min** | **max** |  |
| Mastroianni [4] 2016 | 14 | 1 | 0 | 4 |  |
| **Ventricular Arrhythmias** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Mastroianni [4] 2016 | 14 | 0 | 0,0% |  |  |
| Griffith [6] 2013 | 16 | 0 | 0,0% |  |  |
| Gaudard [7] 2015 | 40 | 3 | 8,0% |  |  |
| **Arrhythmias (Atrial Fibrillation)** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Mastroianni [4] 2016 | 14 | 8 | 57,0% |  |  |
| **Cardiac arrest** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Gaudard [7] 2015 | 40 | 1 | 2,5% |  |  |
| **Catecholamine index** |  |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (mean)** |  |  |  |
| Mastroianni [4] 2016 | 14 | 38,6 |  |  |  |
| **Long term Mechanical ventilation** |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** | **days** |  |
| Mastroianni [4] 2016 | 14 | 10 | 71,5% | 7+-6 |  |
| Monteagudo-Vela [2] 2019 | 14 | 14 | 100,0% | 13+-11 |  |
| David [13] 2019 | 28 | 28 | 100,0% | 13+-11 |  |
| Griffith [6] 2013 | 16 | 11 | 68,8% | - |  |
| **Ventilator-associated pneumonia** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Mastroianni [4] 2016 | 14 | 5 | 35,7% |  |  |
| **Hepatic failure** |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Griffith [6] 2013 | 16 | 1 | 6,3% |  |  |
| **Thrombocytopenia**  |  |  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **%** |  |  |
| Griffith [6] 2013 | 16 | 0 | 0,0% |  |  |
| **Bleeding not requiring surgery**  |
| **First Author, Year** | **Sample size** | **Impella 5.0 (pts)** | **Impella CP (pts)** | **Impella RP (pts)** | **p value** |
| Monteagudo-Vela [2] 2019 | 57 | 0 | 3 | 2 | 0,227 |
|   | **Sample size** | **Impella 5.0 (pts)** | **%** |   |   |
| Boll [14] 2019 | 22 | 0 | 0,0% | - | - |