|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | author | ref. N° | type | transplant organs | | | | | investigated patients | | time of laboratory HIT | | HIT-progression |  |  |  |  | loss of graft | information on |
|  |  |  | of study |  |  |  |  |  |  |  | investigation | | seroconversion (EIA): | functional assay (SRA/HIPA): |  |  |  |  | immunosuppression |
|  |  |  |  | heart | lung | liver | kidney | pancreas |  |  | before | after transplant | anti-PF/heparin-Ab pos | activated antibodies | thromboembolic events | skin lesions | death due to HIT |  |  |
| 1 | Hassan, S | 49 | single-center | x | x | x | x | x | 2587 Tx patients | |  |  |  |  |  |  |  |  |  |
|  |  |  | retrospective |  |  |  |  |  | 262 pt | HIT suspected due to low |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | platelets |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 50 pt | suspicious 4Ts score |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 48pt | Ab positive in EIA | 5 patients | 43 patients | 18% (48/262 suspected) | SRA performed in 14/48 | 2.4% (4/165) of all heart Tx  18% (4/22) of all heart Tx with Ab-positivity  23% (11/48) of all patients with Ab-positivity | no | no | no  information | no |
|  |  |  |  |  |  |  |  |  | 1068 kidney  880 liver  107 lung  165 heart | |  |  | 1.9% (48/2587 all Tx)  0,75% kidney (8/1068)  1.25% liver (11/880)  5.6% lung (6/107)  13.3% heart (22/165) | Ab-positive (EIA) patients  (29%; 14/48pt)  thereof:  78% positive (11/14 patients):  6 heart, 3 kidney, 1 liver, 1 lung |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Hourigan, L | 48 | single-center | x | - | - | - | - | 46 HTx patients | |  |  |  |  |  |  |  |  |  |
|  |  |  | retrospective |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 26 patients | HIT suspected due to low |  |  | 42% (11/26 suspected) |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | platelets |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 11 patients | Ab positive in EIA | 10 patients | 1 patient  (10 months after Tx) | 24% (11/46 all Tx) | not performed | 11% (5/46) of all HTx | no | no | no | yes |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | 45% (5/11) of all HTx with Ab-positivity |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Selleng, S | 44 | case series | x | - | - | - | - | 3 patients |  | 3 patients | 0 | positive | approved by HIPA | no | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | but negative at time of transplantation |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Robitaille, D | 27 | case report | x | - | - | - | - | 2 patients |  | 2 patients | 0 | not performed | approved by SRA / | 1 case: bilateral femoral artery thrombosis | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | HIPA |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Genzen, J | 28 | case report | x | - | - | - | - | 1 patient |  | 1 patient | 0 | positive | not performed | suspected, not | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | proven |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Nocera, P | 29 | case series | x | - | - | - | - | 3 patients |  | 3 patients | 0 | positive | one case approved | no | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | by HIPA, |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | others: not performed |  |  |  |  |  |
| 7 | Pamboukian, S | 30 | case report | x | - | - | - | - | 2 patients |  | 2 patients | 0 | positive | not performed | no | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Mann, M | 33 | case report | x | - | - | - | - | 1 patient |  | 1 patient | 0 | positive | not performed | no | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Zucker, M | 34 | case series | x | - | - | - | - | 9 patients |  | 9 patients | 0 | positive | not performed | 1 case: thrombus | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | pulmonary artery prior to Tx |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Almond, C | 35 | case report | x | - | - | - | - | 1 child |  | 1 child | 0 | positive | not performed | distal extremities | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  | (5 years) |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Anderegg, B | 50 | case report | - | - | - | x | - | 1 patient |  | 0 | 1 patient | positive | negative | ischemic necrosis | no | no | no | yes |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | of 75% of graft on d9after start of |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | UFH therapy |  |  |  |  |
| 12 | Muzzafar, M | 51 | case report | - | - | - | x | - | 1 patient |  | 0 | 1 patient | positive | not performed | renal artery | no | no | yes | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | thrombosis of graft d2 after |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | start of UFH therapy |  |  |  |  |
| 13 | Dracopoulos, S | 52 | case report | - | - | - | x | - | 1 patient |  | 0 | 1 patient | positive | not performed | renal artery | no | no | yes | yes |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | thrombosis of graft, thrombosis of inferior vena cava, pulmonary embolus |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | d8 after start of UFH/LMWH therapy |  |  |  |  |
| 14 | John, U | 53 | case report | - | - | - | x | - | 1 patient |  | 1 patient | 0 | positive | positive | no | no | no | no | yes |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | Biagioni, E | 55 | case report | - | - | x | - | - | 1 patient |  | 1 patient | 0 | positive | not performed | no | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | Anderegg, B | 56 | case report | - | - | x | - | - | 1 patient |  | 1 patient | 0 | positive | inconclusive result | deep vein | no | no | no | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | in SRA | thrombosis (DVT) prior to |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | transplant |  |  |  |  |
| 17 | Fretschner, R | 57 | case report | - | - | x | - | - | 1 patient |  | 1 patient | 0 | positive | positive | left transverse | no | no | no | yes |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | sinus DVT, pulmonary |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | embolism prior to transplant |  |  |  |  |
| 18 | Bachmann, R | 58 | single-center | - | - | x | - | - | 205 patients | | 2 patients | 2 patients | 1.95% (4/205) | not performed | no | no | no | no | yes |
|  |  |  | cohort study retrospective |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 | Kaneko, J | 59 | single-center | - | - | x | - | - | 52 patients |  | perioperative monitoring | | 0.5% preoperative | negative HIPA in | in two anti- | no | no | no | no |
|  |  |  | cohort study, prospective |  |  |  |  |  |  |  | d0, d7, d14 | | 5.6% postoperative | two recipients with significant drop in | PF4/heparin negative |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | no seroconversion in two recipients with | platelet count | recipients |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | thrombosis |  |  |  |  |  |  |
| 20 | Hüser, N | 60 | single-center | - | - | x | - | - | 46 patients |  | 0 | 46 patients | 30.4% (14/46) | not performed | no | no | no | no | yes |
|  |  |  | retrospective |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21 | Bakchoul, T | 61 | single-center | - | - | x | - | - | 38 patients |  | perioperative monitoring | | preoperative: |  | no | no | no | no | yes |
|  |  |  | prospective |  |  |  |  |  |  |  | d0, every second day from d2 to d21 | | 13.2% IgG |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 7.9% IgA |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 57.9% IgM |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | postoperative: |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 15.2% de-novo IgG | 6.1% (HIPA positive IgG) |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Legend: Tx = transplantation; HTx = heart transplantation; pt. = patient(s); d = day; ref. = reference; | | | | | | | | | | | | | | | | | | | |