Addison’s disease associated with advanced HIV may explain the high mortality

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# Baseline table

**Baseline table**

|  |  |
| --- | --- |
| Variable | **N = 528** |
| **Age at enrolment, median (IQR) (years)** | 36.0 (31.0, 43.0) |
| **Gender, n(%)** |  |
| Female | 269 (50.9%) |
| Male | 256 (48.5%) |
| Unknown | 3 (0.6%) |
| **Ethnicity, n(%)** |  |
| Black African | 421 (79.7%) |
| Other | 105 (19.9%) |
| Unknown | 2 (0.4%) |
| **Duration of current illness, median (IQR) (days)** | 14.0 (12.0, 21.0) |
| **Weight loss** | 435 (82.4%) |
| **log10 viral load** | 10.7 (7.4, 12.3) |
| **Tuberculosis** | 445 (84.3%) |
| **Cryptococcus neoformans** | 30 (5.7%) |
| **Pneumonia** | 62 (11.7%) |
| **Staph aureus** | 1 (0.2%) |
| **Kaposis sarcoma** | 6 (1.1%) |
| **Cytomegalovirus** | 1 (0.2%) |
| **HSV** | 8 (1.5%) |
| **HepB** | 18 (3.4%) |
| **Candida** | 29 (5.5%) |
| **GE/c diff** | 18 (3.4%) |
| **Parvo B19** | 1 (0.2%) |
| **Syphilis** | 17 (3.2%) |
| **B menigitis** | 5 (0.9%) |
| **UTI / Leptospirosis** | 7 (1.3%) |
| **PCP** | 4 (0.8%) |
| **COVID-19** | 2 (0.4%) |
| **Neurocysticercosis** | 2 (0.4%) |
| **Total CD4 count** | 33.0 (15.0, 61.0) |
| **White cell count X109** | 5.4 (3.6, 8.1) |
| **Lymphocyte count X109** | 0.8 (0.4, 1.8) |
| **Neutrophils** | 3.2 (1.5, 8.3) |
|  |  |
| **ART exposure** | 202 (38.3%) |
| **Kidney medication** | 51 (9.7%) |

# Table 1

Table 1: Gender

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | **Female**, N = 269 | **Male**, N = 256 | **p-value** |
| **Age at enrolment, median (IQR) (years)** | 35.0 (31.0, 42.0) | 37.0 (32.0, 44.5) | 0.017 |
| **Ethnicity, n(%)** |  |  | 0.6 |
| Black African | 210 (78.1%) | 210 (82.0%) |  |
| Other | 58 (21.6%) | 45 (17.6%) |  |
| Unknown | 1 (0.4%) | 1 (0.4%) |  |
| **Duration of current illness, median (IQR) (days)** | 14.0 (11.5, 21.0) | 14.0 (12.8, 21.0) | 0.6 |
| **Weight loss** | 225 (83.6%) | 208 (81.3%) | 0.5 |
| **log10 viral load** | 10.4 (7.2, 12.2) | 10.7 (7.7, 12.5) | 0.8 |
| **Tuberculosis** | 221 (82.2%) | 222 (86.7%) | 0.2 |
| **Cryptococcus neoformans** | 12 (4.5%) | 18 (7.0%) | 0.2 |
| **Pneumonia** | 30 (11.2%) | 32 (12.5%) | 0.6 |
| **Staph aureus** | 0 (0.0%) | 1 (0.4%) | 0.5 |
| **Kaposis sarcoma** | 4 (1.5%) | 2 (0.8%) | 0.7 |
| **Cytomegalovirus** | 0 (0.0%) | 1 (0.4%) | 0.5 |
| **HSV** | 4 (1.5%) | 4 (1.6%) | >0.9 |
| **HepB** | 7 (2.6%) | 11 (4.3%) | 0.3 |
| **Candida** | 17 (6.3%) | 12 (4.7%) | 0.4 |
| **GE/c diff** | 11 (4.1%) | 7 (2.7%) | 0.4 |
| **Parvo B19** | 1 (0.4%) | 0 (0.0%) | >0.9 |
| **Syphilis** | 8 (3.0%) | 9 (3.5%) | 0.7 |
| **B menigitis** | 4 (1.5%) | 1 (0.4%) | 0.4 |
| **UTI / Leptospirosis** | 1 (0.4%) | 6 (2.3%) | 0.063 |
| **PCP** | 2 (0.7%) | 2 (0.8%) | >0.9 |
| **COVID-19** | 1 (0.4%) | 1 (0.4%) | >0.9 |
| **Neurocysticercosis** | 0 (0.0%) | 2 (0.8%) | 0.2 |
| **Total CD4 count** | 33.0 (15.0, 58.0) | 32.5 (12.8, 64.0) | >0.9 |
| **White cell count X109** | 5.3 (3.5, 8.0) | 5.4 (3.8, 8.3) | 0.8 |
| **Lymphocyte count X109** | 0.9 (0.3, 2.4) | 0.8 (0.5, 1.4) | 0.8 |
| **Neutrophils** | 3.3 (1.5, 10.2) | 3.2 (1.3, 7.3) | 0.6 |
| **ART exposure** | 108 (40.1%) | 93 (36.3%) | 0.4 |
| **Kidney medication** | 18 (6.7%) | 33 (12.9%) | 0.017 |

Table 2: age

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | **≤30**, N = 116 | **31-37**, N = 178 | **≥38**, N = 230 | **p-value** |
| **Gender, n(%)** |  |  |  | 0.14 |
| Female | 65 (56.0%) | 97 (54.5%) | 107 (46.5%) |  |
| Male | 51 (44.0%) | 81 (45.5%) | 123 (53.5%) |  |
| **Ethnicity, n(%)** |  |  |  | 0.7 |
| Black African | 94 (81.0%) | 145 (81.5%) | 180 (78.3%) |  |
| Other | 21 (18.1%) | 33 (18.5%) | 49 (21.3%) |  |
| Unknown | 1 (0.9%) | 0 (0.0%) | 1 (0.4%) |  |
| **Duration of current illness, median (IQR) (days)** | 14.0 (12.0, 21.0) | 14.0 (11.8, 21.0) | 14.0 (13.0, 21.0) | 0.3 |
| **Weight loss** | 101 (87.1%) | 148 (83.1%) | 184 (80.0%) | 0.3 |
| **log10 viral load** | 9.3 (7.5, 12.3) | 10.1 (4.7, 11.9) | 11.2 (8.7, 12.7) | 0.2 |
| **Tuberculosis** | 96 (82.8%) | 155 (87.1%) | 192 (83.5%) | 0.5 |
| **Cryptococcus neoformans** | 3 (2.6%) | 11 (6.2%) | 16 (7.0%) | 0.2 |
| **Pneumonia** | 18 (15.5%) | 25 (14.0%) | 19 (8.3%) | 0.076 |
| **Staph aureus** | 1 (0.9%) | 0 (0.0%) | 0 (0.0%) | 0.2 |
| **Kaposis sarcoma** | 3 (2.6%) | 3 (1.7%) | 0 (0.0%) | 0.036 |
| **Cytomegalovirus** | 0 (0.0%) | 0 (0.0%) | 1 (0.4%) | >0.9 |
| **HSV** | 2 (1.7%) | 1 (0.6%) | 5 (2.2%) | 0.4 |
| **HepB** | 5 (4.3%) | 2 (1.1%) | 11 (4.8%) | 0.084 |
| **Candida** | 5 (4.3%) | 10 (5.6%) | 14 (6.1%) | 0.8 |
| **GE/c diff** | 6 (5.2%) | 6 (3.4%) | 6 (2.6%) | 0.4 |
| **Parvo B19** | 0 (0.0%) | 1 (0.6%) | 0 (0.0%) | 0.6 |
| **Syphilis** | 2 (1.7%) | 6 (3.4%) | 9 (3.9%) | 0.6 |
| **B menigitis** | 1 (0.9%) | 3 (1.7%) | 1 (0.4%) | 0.5 |
| **UTI / Leptospirosis** | 2 (1.7%) | 3 (1.7%) | 2 (0.9%) | 0.7 |
| **PCP** | 0 (0.0%) | 1 (0.6%) | 3 (1.3%) | 0.6 |
| **COVID-19** | 0 (0.0%) | 1 (0.6%) | 1 (0.4%) | >0.9 |
| **Neurocysticercosis** | 1 (0.9%) | 0 (0.0%) | 1 (0.4%) | 0.7 |
| **Total CD4 count** | 28.0 (10.0, 55.0) | 32.0 (13.0, 61.0) | 38.5 (17.8, 64.3) | 0.055 |
| **White cell count X109** | 6.1 (3.8, 8.9) | 5.1 (3.4, 7.8) | 5.4 (3.9, 8.0) | 0.5 |
| **Lymphocyte count X109** | 1.9 (0.4, 11.9) | 0.9 (0.4, 1.6) | 0.7 (0.4, 1.3) | 0.058 |
| **Neutrophils** | 5.4 (1.6, 26.0) | 4.1 (2.3, 8.6) | 2.5 (1.2, 6.4) | 0.067 |
| **ART exposure** | 41 (35.3%) | 72 (40.4%) | 88 (38.3%) | 0.7 |
| **Kidney medication** | 14 (12.1%) | 15 (8.4%) | 22 (9.6%) | 0.6 |

# Table 1.2

Table 3: Patient presentation by CD4 count category

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | **0 - 30**, N = 246 | **31 - 60**, N = 144 | **61 - 100**, N = 132 | **p-value** |
| **Age at enrolment, median (IQR) (years)** | 35.0 (30.0, 42.0) | 37.0 (32.0, 43.3) | 37.0 (32.0, 46.0) | 0.013 |
| **Gender, n(%)** |  |  |  | 0.10 |
| Female | 124 (50.4%) | 82 (56.9%) | 61 (46.2%) |  |
| Male | 122 (49.6%) | 60 (41.7%) | 70 (53.0%) |  |
| Unknown | 0 (0.0%) | 2 (1.4%) | 1 (0.8%) |  |
| **Ethnicity, n(%)** |  |  |  | 0.5 |
| Black African | 203 (82.5%) | 113 (78.5%) | 101 (76.5%) |  |
| Other | 42 (17.1%) | 31 (21.5%) | 30 (22.7%) |  |
| Unknown | 1 (0.4%) | 0 (0.0%) | 1 (0.8%) |  |
| **Duration of current illness, median (IQR) (days)** | 14.0 (14.0, 21.0) | 14.0 (9.8, 21.8) | 14.0 (7.0, 21.0) | 0.059 |
| **Weight loss** | 211 (85.8%) | 121 (84.0%) | 103 (78.0%) | 0.2 |
| **log10 viral load** | 11.6 (9.3, 12.7) | 8.3 (6.2, 12.1) | 8.5 (3.9, 11.4) | 0.001 |
| **Tuberculosis** | 211 (85.8%) | 123 (85.4%) | 109 (82.6%) | 0.7 |
| **Cryptococcus neoformans** | 16 (6.5%) | 4 (2.8%) | 10 (7.6%) | 0.2 |
| **Pneumonia** | 28 (11.4%) | 18 (12.5%) | 16 (12.1%) | >0.9 |
| **Staph aureus** | 1 (0.4%) | 0 (0.0%) | 0 (0.0%) | >0.9 |
| **Kaposis sarcoma** | 6 (2.4%) | 0 (0.0%) | 0 (0.0%) | 0.039 |
| **Cytomegalovirus** | 0 (0.0%) | 1 (0.7%) | 0 (0.0%) | 0.5 |
| **HSV** | 3 (1.2%) | 3 (2.1%) | 2 (1.5%) | 0.9 |
| **HepB** | 9 (3.7%) | 7 (4.9%) | 2 (1.5%) | 0.3 |
| **Candida** | 16 (6.5%) | 12 (8.3%) | 1 (0.8%) | 0.016 |
| **GE/c diff** | 10 (4.1%) | 6 (4.2%) | 2 (1.5%) | 0.4 |
| **Parvo B19** | 0 (0.0%) | 1 (0.7%) | 0 (0.0%) | 0.5 |
| **Syphilis** | 7 (2.8%) | 8 (5.6%) | 1 (0.8%) | 0.064 |
| **B menigitis** | 3 (1.2%) | 1 (0.7%) | 1 (0.8%) | >0.9 |
| **UTI / Leptospirosis** | 4 (1.6%) | 0 (0.0%) | 3 (2.3%) | 0.2 |
| **PCP** | 3 (1.2%) | 1 (0.7%) | 0 (0.0%) | 0.8 |
| **COVID-19** | 1 (0.4%) | 1 (0.7%) | 0 (0.0%) | >0.9 |
| **Neurocysticercosis** | 1 (0.4%) | 1 (0.7%) | 0 (0.0%) | >0.9 |
| **White cell count X109** | 5.0 (2.9, 7.3) | 5.7 (4.1, 8.9) | 6.5 (4.4, 9.3) | <0.001 |
| **Lymphocyte count X109** | 0.6 (0.3, 1.3) | 1.0 (0.5, 2.0) | 1.2 (0.7, 2.8) | 0.027 |
| **Neutrophils** | 2.3 (1.0, 5.7) | 5.3 (1.6, 14.8) | 5.4 (3.3, 10.9) | 0.004 |
| **ART exposure** | 94 (38.2%) | 59 (41.0%) | 49 (37.1%) | 0.8 |
| **Kidney medication** | 27 (11.0%) | 15 (10.4%) | 9 (6.8%) | 0.4 |

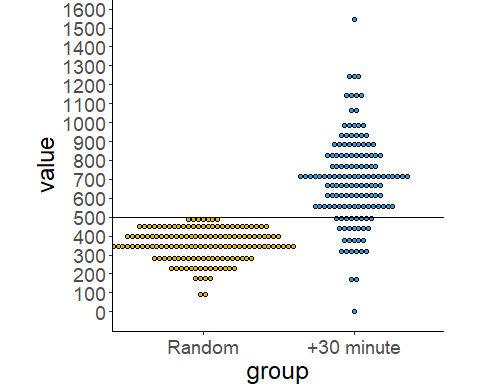
A graph of a number of different colored squares

Description automatically generated with medium confidence

# Table 2: comparing Addison’s status with other variables

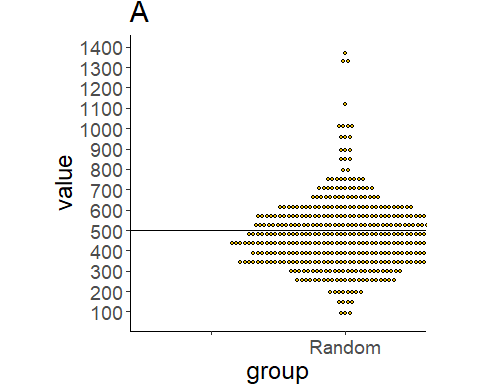
Table 2: Should compare Total AI with Non-AI patients

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | **AI**, N = 26 | **no-AI**, N = 502 | **p-value** | **PAI**, N = 20 | **SAI**, N = 6 | **p-value** |
| **Age at enrolment, median (IQR) (years)** | 36.0 (31.5, 46.0) | 36.0 (31.0, 43.0) | 0.5 | 36.0 (31.0, 42.3) | 43.0 (35.3, 51.5) | 0.3 |
| **Gender, n(%)** |  |  | 0.9 |  |  | 0.7 |
| Female | 14 (53.8%) | 255 (50.8%) |  | 10 (50.0%) | 4 (66.7%) |  |
| Male | 12 (46.2%) | 244 (48.6%) |  | 10 (50.0%) | 2 (33.3%) |  |
| Unknown | 0 (0.0%) | 3 (0.6%) |  |  |  |  |
| **Ethnicity, n(%)** |  |  | 0.4 |  |  | >0.9 |
| Black African | 23 (88.5%) | 398 (79.3%) |  | 18 (90.0%) | 5 (83.3%) |  |
| Other | 3 (11.5%) | 102 (20.3%) |  | 2 (10.0%) | 1 (16.7%) |  |
| Unknown | 0 (0.0%) | 2 (0.4%) |  |  |  |  |
| **Duration of current illness, median (IQR) (days)** | 14.0 (14.0, 30.0) | 14.0 (12.0, 21.0) | 0.6 | 14.0 (10.8, 15.8) | 30.0 (30.0, 30.0) | 0.013 |
| **Weight loss** | 21 (80.8%) | 414 (82.5%) | 0.8 | 18 (90.0%) | 3 (50.0%) | 0.062 |
| **Viral load (log10 Copies/mL)** | 11.0 (10.7, 11.3) | 10.7 (7.3, 12.3) | 0.8 | 11.0 (10.7, 11.3) | \_ |  |
| **Tuberculosis** | 20 (76.9%) | 425 (84.7%) | 0.3 | 15 (75.0%) | 5 (83.3%) | >0.9 |
| **Cryptococcus neoformans** | 10 (38.5%) | 20 (4.0%) | <0.001 | 9 (45.0%) | 1 (16.7%) | 0.4 |
| **Pneumonia** | 3 (11.5%) | 59 (11.8%) | >0.9 | 2 (10.0%) | 1 (16.7%) | >0.9 |
| **Staph aureus** | 1 (3.8%) | 0 (0.0%) | 0.049 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **Kaposis sarcoma** | 1 (3.8%) | 5 (1.0%) | 0.3 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **Cytomegalovirus** | 1 (3.8%) | 0 (0.0%) | 0.049 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **HSV** | 1 (3.8%) | 7 (1.4%) | 0.3 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **HepB** | 2 (7.7%) | 16 (3.2%) | 0.2 | 1 (5.0%) | 1 (16.7%) | 0.4 |
| **Candida** | 1 (3.8%) | 28 (5.6%) | >0.9 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **GE/c diff** | 0 (0.0%) | 18 (3.6%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Parvo B19** | 1 (3.8%) | 0 (0.0%) | 0.049 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **Syphilis** | 0 (0.0%) | 17 (3.4%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **B menigitis** | 0 (0.0%) | 5 (1.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **UTI / Leptospirosis** | 0 (0.0%) | 7 (1.4%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **PCP** | 0 (0.0%) | 4 (0.8%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **COVID-19** | 0 (0.0%) | 2 (0.4%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Neurocysticercosis** | 0 (0.0%) | 2 (0.4%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Total CD4 count** | 25.5 (13.3, 50.3) | 33.5 (15.0, 61.0) | 0.4 | 25.5 (13.8, 50.5) | 32.0 (9.8, 49.0) | >0.9 |
| **White cell count X109** | 4.7 (2.7, 9.8) | 5.4 (3.7, 8.1) | 0.5 | 4.5 (2.5, 7.6) | 5.2 (4.1, 11.2) | 0.3 |
| **Lymphocyte count X109** | 0.9 (0.5, 1.3) | 0.8 (0.4, 1.8) | 0.7 | 1.3 (1.0, 17.5) | 0.5 (0.4, 0.8) | 0.2 |
| **Neutrophils** | 1.0 (0.9, 1.5) | 3.7 (1.5, 8.9) | 0.012 | 0.7 (0.6, 0.8) | 1.5 (1.3, 1.6) | 0.2 |
| **Sodium mmol/L** | 135.0 (133.0, 137.0) | 134.0 (130.0, 137.0) | 0.063 | 134.5 (131.8, 137.0) | 136.0 (135.3, 138.3) | 0.2 |
| **Potassium mmol/L** | 3.9 (3.3, 4.1) | 4.1 (3.7, 4.6) | 0.039 | 3.8 (3.3, 4.1) | 3.9 (3.4, 4.1) | 0.9 |
| **Haemoglobin g/dL** | 8.7 (7.6, 10.4) | 8.7 (7.4, 10.3) | 0.9 | 8.5 (7.7, 10.3) | 8.7 (6.7, 10.5) | >0.9 |
| **BP (systolic)** | 120.0 (106.5, 128.8) | 111.0 (102.0, 125.0) | 0.2 | 120.0 (109.5, 128.5) | 115.0 (102.0, 125.8) | 0.6 |
| **BP (diastolic)** | 72.0 (64.8, 80.0) | 70.0 (60.0, 79.0) | 0.083 | 71.0 (68.3, 80.0) | 73.0 (61.0, 78.3) | 0.8 |
| **Heart rate** | 86.5 (77.8, 108.0) | 90.5 (78.8, 109.0) | 0.7 | 91.0 (76.8, 110.3) | 85.0 (82.5, 86.8) | 0.8 |
| **Hypotension** | 1 (3.8%) | 40 (8.0%) | 0.7 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **Weakness** | 21 (80.8%) | 403 (80.3%) | >0.9 | 15 (75.0%) | 6 (100.0%) | 0.3 |
| **Tiredness** | 23 (88.5%) | 404 (80.5%) | 0.4 | 17 (85.0%) | 6 (100.0%) | >0.9 |
| **Poor appetite** | 22 (84.6%) | 357 (71.1%) | 0.14 | 18 (90.0%) | 4 (66.7%) | 0.2 |
| **Increased pigmentation of the skin** | 9 (34.6%) | 232 (46.2%) | 0.2 | 7 (35.0%) | 2 (33.3%) | >0.9 |
| **Nausea** | 16 (61.5%) | 249 (49.6%) | 0.2 | 11 (55.0%) | 5 (83.3%) | 0.4 |
| **Vomiting** | 8 (30.8%) | 133 (26.5%) | 0.6 | 6 (30.0%) | 2 (33.3%) | >0.9 |
| **Liking for salt** | 18 (69.2%) | 256 (51.0%) | 0.070 | 13 (65.0%) | 5 (83.3%) | 0.6 |
| **Hypoglycaemia** | 0 (0.0%) | 11 (2.2%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Loss of consciousness** | 0 (0.0%) | 7 (1.4%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Diarrhoea** | 8 (30.8%) | 205 (40.8%) | 0.3 | 5 (25.0%) | 3 (50.0%) | 0.3 |
| **Dizziness** | 13 (50.0%) | 222 (44.2%) | 0.6 | 10 (50.0%) | 3 (50.0%) | >0.9 |
| **Shock** | 0 (0.0%) | 5 (1.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Anorexia** | 8 (30.8%) | 220 (43.8%) | 0.2 | 7 (35.0%) | 1 (16.7%) | 0.6 |
| **Loss of axillary and pubic hair, if female** |  |  | 0.8 |  |  | 0.7 |
| No | 11 (42.3%) | 191 (38.0%) |  | 8 (40.0%) | 3 (50.0%) |  |
| Not applicable | 12 (46.2%) | 222 (44.2%) |  | 10 (50.0%) | 2 (33.3%) |  |
| Yes | 3 (11.5%) | 89 (17.7%) |  | 2 (10.0%) | 1 (16.7%) |  |
| **Any postural drop in blood pressure** | 2 (7.7%) | 16 (3.2%) | 0.2 | 1 (5.0%) | 1 (16.7%) | 0.4 |
| **Presence of anaemia** | 13 (50.0%) | 273 (54.4%) | 0.7 | 11 (55.0%) | 2 (33.3%) | 0.6 |
| **ART exposure** | 6 (23.1%) | 196 (39.0%) | 0.10 | 5 (25.0%) | 1 (16.7%) | >0.9 |
| **Kidney medication** | 5 (19.2%) | 46 (9.2%) | 0.095 | 4 (20.0%) | 1 (16.7%) | >0.9 |



A chart with numbers and a group

Description automatically generated with medium confidence



Mortality: Non-AI vs AI

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | **Died without AI**, N = 58 | **Died with AI**, N = 6 | **p-value** | **Alive with AI**, N = 20 | **Died with AI**, N = 6 | **p-value** |
| **Age at enrolment, median (IQR) (years)** | 39 (33, 45) | 41 (33, 46) | 0.7 |  |  |  |
| **Gender, n(%)** |  |  | >0.9 |  |  | >0.9 |
| Female | 32 (55.2%) | 3 (50.0%) |  | 11 (55.0%) | 3 (50.0%) |  |
| Male | 26 (44.8%) | 3 (50.0%) |  | 9 (45.0%) | 3 (50.0%) |  |
| Unknown | 0 (0.0%) | 0 (0.0%) |  | 0 (0.0%) | 0 (0.0%) |  |
| **Ethnicity, n(%)** |  |  | 0.2 |  |  | 0.12 |
| Black African | 50 (86.2%) | 4 (66.7%) |  | 19 (95.0%) | 4 (66.7%) |  |
| Other | 8 (13.8%) | 2 (33.3%) |  | 1 (5.0%) | 2 (33.3%) |  |
| **Duration of current illness, median (IQR) (days)** | 14 (14, 21) | 14 (11, 14) | 0.063 | \_ | \_ |  |
| **Weight loss** | 50 (86.2%) | 4 (66.7%) | 0.2 | 17 (85.0%) | 4 (66.7%) | 0.6 |
| **Viral load (log10 Copies/mL)** | 12.00 (10.29, 13.14) | \_ |  |  |  | >0.9 |
| **Tuberculosis** | 47 (81.0%) | 5 (83.3%) | >0.9 | 15 (75.0%) | 5 (83.3%) | >0.9 |
| **Cryptococcus neoformans** | 3 (5.2%) | 3 (50.0%) | 0.009 | 7 (35.0%) | 3 (50.0%) | 0.6 |
| **Pneumonia** | 7 (12.1%) | 0 (0.0%) | >0.9 | 3 (15.0%) | 0 (0.0%) | >0.9 |
| **Staph aureus** | 0 (0.0%) | 0 (0.0%) |  | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **Kaposis sarcoma** | 0 (0.0%) | 0 (0.0%) |  | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **Cytomegalovirus** | 0 (0.0%) | 0 (0.0%) |  | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **HSV** | 1 (1.7%) | 0 (0.0%) | >0.9 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **HepB** | 0 (0.0%) | 1 (16.7%) | 0.094 | 1 (5.0%) | 1 (16.7%) | 0.4 |
| **Candida** | 4 (6.9%) | 0 (0.0%) | >0.9 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **GE/c diff** | 0 (0.0%) | 0 (0.0%) |  | 0 (0.0%) | 0 (0.0%) |  |
| **Parvo B19** | 0 (0.0%) | 0 (0.0%) |  | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **Syphilis** | 2 (3.4%) | 0 (0.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **B menigitis** | 1 (1.7%) | 0 (0.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **UTI / Leptospirosis** | 1 (1.7%) | 0 (0.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **PCP** | 2 (3.4%) | 0 (0.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **COVID-19** | 0 (0.0%) | 0 (0.0%) |  | 0 (0.0%) | 0 (0.0%) |  |
| **Neurocysticercosis** | 0 (0.0%) | 0 (0.0%) |  | 0 (0.0%) | 0 (0.0%) |  |
| **Total CD4 count** | 26 (13, 54) | 30 (16, 45) | 0.7 | 25.5 (10.0, 52.8) | 30.0 (15.5, 45.3) | 0.8 |
| **White cell count X109** | 5.0 (3.4, 7.4) | 8.3 (4.3, 27.5) | 0.2 | 4.1 (2.5, 6.3) | 8.3 (4.3, 27.5) | 0.2 |
| **Lymphocyte count X109** | 0.80 (0.40, 0.99) | \_ |  | 0.85 (0.52, 1.26) | \_ | >0.9 |
| **Neutrophils** | 2 (1, 5) | \_ |  |  |  |  |
| **Sodium mmol/L** | 133.0 (127.5, 136.0) | 136.5 (133.3, 139.0) | 0.2 | 135.0 (132.8, 136.3) | 136.5 (133.3, 139.0) | 0.6 |
| **Potassium mmol/L** | 3.90 (3.60, 4.60) | 3.70 (3.37, 3.88) | 0.092 | 4.0 (3.3, 4.6) | 3.7 (3.4, 3.9) | 0.4 |
| **Haemoglobin g/dL** | 8.35 (7.05, 9.67) | 9.60 (8.25, 10.95) | 0.4 | 8.5 (7.6, 10.2) | 9.6 (8.3, 11.0) | 0.4 |
| **BP (systolic)** | 110 (102, 120) | 128 (122, 130) | 0.051 | 120.0 (103.3, 128.3) | 127.5 (121.8, 129.5) | 0.2 |
| **BP (diastolic)** | 70 (66, 80) | 74 (65, 78) | >0.9 | 72.0 (67.5, 81.3) | 73.5 (65.0, 78.3) | 0.7 |
| **Heart rate** | 93 (82, 109) | 87 (72, 98) | 0.2 | 86.5 (79.3, 114.0) | 87.0 (71.5, 98.0) | 0.4 |
| **Hypotension** | 7 (12.1%) | 0 (0.0%) | >0.9 | 1 (5.0%) | 0 (0.0%) | >0.9 |
| **Weakness** | 52 (89.7%) | 4 (66.7%) | 0.2 | 17 (85.0%) | 4 (66.7%) | 0.6 |
| **Tiredness** | 50 (86.2%) | 6 (100.0%) | >0.9 | 17 (85.0%) | 6 (100.0%) | >0.9 |
| **Poor appetite** | 49 (84.5%) | 6 (100.0%) | 0.6 | 16 (80.0%) | 6 (100.0%) | 0.5 |
| **Increased pigmentation of the skin** | 35 (60.3%) | 2 (33.3%) | 0.2 | 7 (35.0%) | 2 (33.3%) | >0.9 |
| **Nausea** | 36 (62.1%) | 5 (83.3%) | 0.4 | 11 (55.0%) | 5 (83.3%) | 0.4 |
| **Vomiting** | 15 (25.9%) | 2 (33.3%) | 0.7 | 6 (30.0%) | 2 (33.3%) | >0.9 |
| **Liking for salt** | 38 (65.5%) | 4 (66.7%) | >0.9 | 14 (70.0%) | 4 (66.7%) | >0.9 |
| **Hypoglycaemia** | 2 (3.4%) | 0 (0.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Loss of consciousness** | 2 (3.4%) | 0 (0.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Diarrhoea** | 32 (55.2%) | 1 (16.7%) | 0.10 | 7 (35.0%) | 1 (16.7%) | 0.6 |
| **Dizziness** | 33 (56.9%) | 3 (50.0%) | >0.9 | 10 (50.0%) | 3 (50.0%) | >0.9 |
| **Shock** | 2 (3.4%) | 0 (0.0%) | >0.9 | 0 (0.0%) | 0 (0.0%) |  |
| **Anorexia** | 34 (58.6%) | 2 (33.3%) | 0.4 | 6 (30.0%) | 2 (33.3%) | >0.9 |
| **Loss of axillary and pubic hair, if female** |  |  | 0.8 |  |  | >0.9 |
| No | 16 (27.6%) | 2 (33.3%) |  | 9 (45.0%) | 2 (33.3%) |  |
| Not applicable | 23 (39.7%) | 3 (50.0%) |  | 9 (45.0%) | 3 (50.0%) |  |
| Yes | 19 (32.8%) | 1 (16.7%) |  | 2 (10.0%) | 1 (16.7%) |  |
| **Any postural drop in blood pressure** | 4 (6.9%) | 0 (0.0%) | >0.9 | 2 (10.0%) | 0 (0.0%) | >0.9 |
| **Presence of anaemia** | 36 (62.1%) | 3 (50.0%) | 0.7 | 10 (50.0%) | 3 (50.0%) | >0.9 |
| **Age at enrolment median (IQR) (years)** |  |  |  | 36.0 (32.5, 44.0) | 40.5 (33.3, 46.3) | 0.7 |
| **Random cortisol** |  |  |  | 316.0 (236.0, 381.5) | 306.5 (261.5, 335.8) | >0.9 |
| **Basal cortisol** |  |  |  | 292.0 (184.0, 354.5) | 308.0 (246.3, 364.5) | 0.6 |
| **Stimulated cortisol** |  |  |  | 398.5 (312.5, 465.3) | 375.0 (338.0, 424.0) | 0.7 |
| **ACTH** |  |  |  | 26.3 (20.2, 65.9) | 42.4 (25.7, 77.7) | 0.6 |
| **Addison’s disease** |  |  |  |  |  | >0.9 |
| PAI |  |  |  | 15 (75.0%) | 5 (83.3%) |  |
| SAI |  |  |  | 5 (25.0%) | 1 (16.7%) |  |
| **ART exposure** | 24 (41.4%) | 1 (16.7%) | 0.4 | 5 (25.0%) | 1 (16.7%) | >0.9 |
| **Kidney medication** | 10 (17.2%) | 1 (16.7%) | >0.9 | 4 (20.0%) | 1 (16.7%) | >0.9 |

Table: Bivariate table for Mortality

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic** | **N** | **HR** | **95% CI** | **p-value** |
| Age\_at\_enrolment | 527 | 1.02 | 0.99, 1.04 | 0.2 |
| Gender | 528 |  |  |  |
| Female |  | 1 | — |  |
| Male |  | 0.86 | 0.53, 1.41 | 0.6 |
| Unknown |  | 0.00 | 0.00, Inf | >0.9 |
| Ethnicity | 528 |  |  |  |
| Black African |  | 1 | — |  |
| Other |  | 0.73 | 0.37, 1.43 | 0.4 |
| Unknown |  | 0.00 | 0.00, Inf | >0.9 |
| Random\_cortisol | 425 | 1.00 | 1.00, 1.00 | 0.5 |
| Basal\_cortisol | 148 | 1.00 | 1.00, 1.00 | 0.2 |
| Stimulated\_cortisol | 145 | 1.00 | 1.00, 1.00 | >0.9 |
| ACTH | 425 | 1.01 | 1.00, 1.01 | <0.001 |
| BP\_systolic | 519 | 0.99 | 0.98, 1.01 | 0.3 |
| BP\_diastolic | 519 | 1.01 | 1.00, 1.03 | 0.12 |
| Heart\_rate | 518 | 1.00 | 0.99, 1.02 | 0.4 |
| Hypotension | 528 | 1.48 | 0.68, 3.25 | 0.3 |
| Weakness | 528 | 1.74 | 0.83, 3.65 | 0.14 |
| Tiredness | 528 | 1.68 | 0.80, 3.53 | 0.2 |
| Poor\_appetite | 528 | 2.49 | 1.23, 5.04 | 0.011 |
| Weight\_loss | 528 | 1.15 | 0.58, 2.25 | 0.7 |
| Increased\_pigmentation\_of\_the\_skin | 528 | 1.66 | 1.01, 2.73 | 0.045 |
| Nausea | 528 | 1.83 | 1.10, 3.04 | 0.021 |
| Vomiting | 528 | 1.00 | 0.58, 1.75 | >0.9 |
| Liking\_for\_salt | 528 | 1.83 | 1.09, 3.07 | 0.021 |
| Hypoglycaemia | 528 | 1.50 | 0.37, 6.13 | 0.6 |
| Loss\_of\_consciousness | 528 | 2.60 | 0.64, 10.6 | 0.2 |
| Diarrhoea | 528 | 1.60 | 0.98, 2.62 | 0.059 |
| Dizziness | 528 | 1.65 | 1.01, 2.70 | 0.047 |
| Shock | 528 | 3.82 | 0.93, 15.6 | 0.062 |
| Anorexia | 528 | 1.73 | 1.06, 2.84 | 0.030 |
| Loss\_of\_axillary\_and\_pubic\_hair | 528 |  |  |  |
| No |  | 1 | — |  |
| Not applicabl |  | 1.25 | 0.68, 2.28 | 0.5 |
| Yes |  | 2.58 | 1.36, 4.88 | 0.004 |
| Any\_postural\_drop\_in\_blood\_pressure | 528 | 1.97 | 0.72, 5.42 | 0.2 |
| Presence\_of\_anaemia | 528 | 1.33 | 0.81, 2.20 | 0.3 |
| Tuberculosis | 528 | 0.79 | 0.42, 1.48 | 0.5 |
| Cryptococcus neoformans | 528 | 1.80 | 0.78, 4.17 | 0.2 |
| Pneumonia | 528 | 0.93 | 0.42, 2.04 | 0.9 |
| Staph aureus | 528 | 0.00 | 0.00, Inf | >0.9 |
| Kaposis sarcoma | 528 | 0.00 | 0.00, Inf | >0.9 |
| Cytomegalovirus | 528 | 0.00 | 0.00, Inf | >0.9 |
| HSV | 528 | 0.99 | 0.14, 7.10 | >0.9 |
| HepB | 528 | 0.43 | 0.06, 3.11 | 0.4 |
| Candida | 528 | 1.18 | 0.43, 3.24 | 0.7 |
| GE/c diff | 528 | 0.00 | 0.00, Inf | >0.9 |
| Parvo B19 | 528 | 0.00 | 0.00, Inf | >0.9 |
| Syphilis | 528 | 0.92 | 0.23, 3.78 | >0.9 |
| B menigitis | 528 | 1.70 | 0.24, 12.3 | 0.6 |
| UTI / Leptospirosis | 528 | 1.18 | 0.16, 8.51 | 0.9 |
| PCP | 528 | 5.68 | 1.39, 23.2 | 0.016 |
| COVID-19 | 528 | 0.00 | 0.00, Inf | >0.9 |
| Neurocysticercosis | 528 | 0.00 | 0.00, Inf | >0.9 |
| Viral\_load | 115 | 1.24 | 1.04, 1.49 | 0.019 |
| CD4\_count | 522 | 0.99 | 0.98, 1.00 | 0.2 |
| Sodium | 498 | 1.00 | 0.98, 1.02 | >0.9 |
| Potassium | 496 | 0.98 | 0.94, 1.04 | 0.5 |
| Haemoglobin | 522 | 0.98 | 0.88, 1.10 | 0.8 |
| White\_cell\_count | 518 | 1.00 | 1.00, 1.00 | >0.9 |
| Lymphocyte\_count | 120 | 0.92 | 0.81, 1.06 | 0.3 |
| Addisons\_disease | 528 | 2.19 | 0.94, 5.07 | 0.068 |
| ART exposure | 528 | 1.04 | 0.63, 1.73 | 0.9 |
| Kidney medication | 528 | 2.08 | 1.08, 3.97 | 0.028 |

# Table 4: Multivariate table mortality

COXPH model on effect of Addisons on mortality

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **HR** | **95% CI** | **p-value** |
| AI | 1.93 | 0.82, 4.52 | 0.13 |
| CD4\_count | 0.88 | 0.67, 1.14 | 0.3 |
| Lymphocyte\_count | 0.97 | 0.93, 1.02 | 0.3 |
| Potassium | 0.99 | 0.93, 1.04 | 0.6 |
| Kidney\_medication |  |  |  |
| No | — | — |  |
| Yes | 1.94 | 1.00, 3.74 | 0.049 |

Logistic model on effect of Addisons on mortality

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **OR** | **95% CI** | **p-value** |
| AI | 2.08 | 0.72, 5.25 | 0.14 |
| CD4\_count | 0.87 | 0.65, 1.14 | 0.3 |
| Lymphocyte\_count | 0.97 | 0.90, 1.00 | 0.3 |
| Potassium | 0.99 | 0.90, 1.02 | 0.6 |
| Kidney\_medication |  |  |  |
| No | — | — |  |
| Yes | 2.09 | 0.96, 4.26 | 0.050 |

png 2

# Table 5 univariate analysis for addisson’s disease

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic** | **N** | **OR** | **95% CI** | **p-value** |
| Age at enrolment | 527 | 1.02 | 0.97, 1.06 | 0.4 |
| Gender, n(%) | 528 |  |  |  |
| Female |  | 1 |  |  |
| Male |  | 0.90 | 0.40, 1.98 | 0.8 |
| Unknown |  | 0.00 |  | >0.9 |
| Ethnicity, n(%) | 528 | 0.50 | 0.12, 1.44 | 0.3 |
| Duration of current illness, median (IQR) (days) | 494 | 1.00 | 0.97, 1.00 | 0.7 |
| Weight loss | 528 | 0.89 | 0.35, 2.73 | 0.8 |
| log10 viral load | 115 | 1.12 | 0.75, 1.88 | 0.6 |
| Tuberculosis | 528 | 0.60 | 0.25, 1.69 | 0.3 |
| Cryptococcus neoformans | 528 | 15.1 | 5.96, 37.2 | <0.001 |
| Pneumonia | 528 | 0.98 | 0.23, 2.93 | >0.9 |
| Kaposis sarcoma | 528 | 3.98 | 0.20, 25.9 | 0.2 |
| HSV | 528 | 2.83 | 0.15, 16.8 | 0.3 |
| HepB | 528 | 2.53 | 0.39, 9.60 | 0.2 |
| Candida | 528 | 0.68 | 0.04, 3.39 | 0.7 |
| Total CD4 count | 522 | 0.99 | 0.98, 1.01 | 0.4 |
| White cell count X109 | 518 | 1.00 | 1.00, 1.00 | 0.4 |
| Neutrophils | 121 | 0.01 | 0.00, 0.55 | 0.094 |
| Sodium mmol/L | 498 | 1.21 | 0.95, 1.52 | 0.13 |
| Potassium mmol/L | 496 | 0.96 | 0.54, 1.13 | 0.8 |
| BP (systolic) | 519 | 1.01 | 0.98, 1.03 | 0.5 |
| BP (diastolic) | 519 | 1.02 | 0.99, 1.05 | 0.2 |
| Any postural drop in blood pressure | 528 | 2.53 | 0.39, 9.60 | 0.2 |
| Heart rate | 518 | 1.00 | 0.98, 1.01 | 0.7 |
| Hypotension | 528 | 0.46 | 0.03, 2.27 | 0.5 |
| Weakness | 528 | 1.03 | 0.41, 3.15 | >0.9 |
| Tiredness | 528 | 1.86 | 0.63, 7.95 | 0.3 |
| Poor appetite | 528 | 2.23 | 0.84, 7.74 | 0.15 |
| Increased pigmentation of the skin | 528 | 0.62 | 0.26, 1.38 | 0.3 |
| Nausea | 528 | 1.63 | 0.73, 3.77 | 0.2 |
| Vomiting | 528 | 1.23 | 0.50, 2.81 | 0.6 |
| Liking for salt | 528 | 2.16 | 0.95, 5.35 | 0.076 |
| Diarrhoea | 528 | 0.64 | 0.26, 1.46 | 0.3 |
| Dizziness | 528 | 1.26 | 0.57, 2.80 | 0.6 |
| Anorexia | 528 | 0.57 | 0.23, 1.29 | 0.2 |
| Presence of anaemia | 528 | 0.84 | 0.38, 1.86 | 0.7 |
| ART exposure | 528 | 0.47 | 0.17, 1.12 | 0.11 |
| Kidney medication | 528 | 2.36 | 0.76, 6.11 | 0.10 |
| mortality | 527 | 2.29 | 0.81, 5.63 | 0.088 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **OR** | **95% CI** | **p-value** |
| Potassium | 0.97 | 0.53, 1.17 | 0.8 |
| Neutrophils | 1.00 | 0.88, 1.08 | >0.9 |
| CD4\_count | 0.99 | 0.98, 1.01 | 0.4 |