**Hypothesis/objectives:**

1) Investigate the associations between clinical manifestations and co-morbidity

2) Prevalence of chronic comorbidities in CHIKV and

3) Evaluate their possible contributions to disease severity

**Table 1: Baseline information of chikungunya**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Comorbid (N=349) | Non-comorbid (N=977) | *P* value |
| **Age (years)** |  |  |  |
| <15 | 6 (1.72%) | 78 (8.00%) |  |
| AYA (15-29) | 66 (18.91%) | 496 (50.87%) | <0.001 |
| 30-59 | 213 (61.03%) | 375 (38.46%) |  |
| >59 | 64 (18.34%) | 26 (2.67%) |  |
| **Gender** |  |  |  |
| Male | 174 (48.86%) | 584 (59.77%) | 0.001 |
| Female | 175 (50.14%) | 393 (40.23%) |  |
| **Hospitalization** |  |  |  |
| Yes | 22 (6.32%) | 54 (5.58%) | 0.613 |
| No | 326 (93.68%) | 913 (94.42%) |  |

**Table 2: Prevalence of co-morbid conditions among chikungunya patients**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Total (%) | Male (%) | Female (%) | *P* value |
| Hypertension | 167 (12.59) | 77 (10.16) | 90 (15.85) | 0.002 |
| Diabetes | 125 (9.43) | 60 (7.92) | 65 (11.44) | 0.030 |
| Stroke | 9 (0.68) | 7 (0.92) | 2 (0.35) | 0.315\* |
| Heart disease | 40 (3.02) | 23 (3.03) | 17 (2.99) | 0.965 |
| CKD | 8 (0.60) | 5 (0.66) | 3 (0.53) | 1.000\* |
| COPD | 9 (0.68) | 4 (0.53) | 5 (0.88) | 0.509\* |
| Others | 101 (7.62) | 45 (5.94) | 56 (9.86) | 0.008 |

\* Fisher's exact test

**Table 3:** Clinical manifestation of acute CHIKV infection among comorbid and non-comorbid patients

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **Comorbid (N=339)** | **Non-Comorbid (N= )** | ***P* value** |
| Joint pain before fever | 259 (74.21%) | 731 (75.05%) | 0.756 |
| Pain score, mean (SD)\*\* | 8.56 (1.49) | 8.30 (1.66) | 0.014 |
| **Pain severity** |  |  |  |
| *Mild+ moderate* | 37 (10.66%) | 139 (14.36%) | 0.083 |
| *Severe* | 310 (89.34%) | 829 (85.64%) |  |
| Pain duration in first two week, mean (SD) | 11.70 (3.62) | 10.97 (4.02) | 0.002 |
| Joint stiffness | 279 (79.94%) | 717 (73.84%) |  |
| Joint swelling | 229 (65.62%) | 483 (49.59%) | <0.001 |
| **Number of joints affected** |  |  |  |
| Oligoarthralgia | 129 (36.96%) | 439 (44.93%) | 0.010 |
| Polyarthralgia | 220 (63.04%) | 538 (55.07%) |  |
| **Major joint affected** |  |  |  |
| *Finger* | 284 (81.38%) | 692 (70.83%) | <0.001 |
| *wrist* | 281 (80.52%) | 710 (72.67%) | 0.004 |
| *spine* | 192 (55.01%) | 504 (51.59%) | 0.271 |
| *Knee* | 271 (77.65%) | 710 (72.67%) | 0.069 |
| *Ankle* | 288 (82.52%) | 792 (81.06%) | 0.548 |
| *Feet* | 240 (68.77%) | 614 (62.85%) | 0.047 |
| *Shoulder* | 160 (45.85%) | 351 (35.93%) | <0.001 |
| Frequency of Swollen joints, mean (SD)\* | 1.42 (1.43) | 0.99 (1.28) | <0.001 |
| Joint redness | 103 (29.68%) | 272 (28.13%) | 0.582 |
| **Difficulty in movement** |  |  |  |
| *Walking* | 188 (53.87%) | 500 (51.18%) | 0.388 |
| *Sitting* | 175 (50.14%) | 408 (41.76%) | 0.007 |
| *Standing* | 183 (52.44%) | 438 (44.83%) | 0.015 |
| Skin rash | 220 (63.04%) | 702 (72.22%) | 0.001 |
| Itching | 214 (61.32%) | 594 (61.11%) | 0.946 |
| Headache | 256 (73.35%) | 768 (79.01%) | 0.030 |
| Myalgia | 236 (67.62%) | 682 (70.45%) | 0.324 |
| Red eye | 189 (55.26%) | 559 (57.69%) | 0.436 |
| Retro-orbital pain | 105 (30.17%) | 336 (34.71%) | 0.124 |
| Edema | 86 (24.78%) | 153 (15.79%) | <0.001 |
| **Gastrointestinal problems** |  |  |  |
| *Loss appetite* | 255 (73.07%) | 668 (68.37%) | <0.001 |
| *Nausea* | 199 (57.02%) | 596 (61.07%) | 0.192 |
| *Diarrhea* | 104 (30.00%) | 229 (23.44%) | 0.019 |
| *Abdominal cramp* | 51 (14.61%) | 123 (12.59%) | 0.337 |
| *Irregular bowel movement* | 41 (11.75%) | 94 (9.62%) | 0.260 |
| **Others (atypical symptoms)** |  |  |  |
| *Chest pain* | 58 (16.62%) | 111 (11.36%) | 0.011 |
| *Blurred vision* | 75 (21.49%) | 155 (15.86%) | 0.017 |
| *Memory loss* | 30 (8.60%) | 71 (7.27%) | 0.422 |
| *Pigmentation* | 59 (16.95%) | 170 (17.49%) | 0.821 |
| *Oral ulcer* | 110 (31.52%) | 305 (31.34%) | 0.953 |
| *Drop in blood pressure* | 95 (27.38%) | 91 (9.34%) | <0.001 |
| *Maculopapular eruption* | 25 (7.18%) | 62 (6.38%) | 0.603 |
| *Bleeding manifestations* | 10 (2.87%) | 30 (3.09%) | 0.842 |
| Days missed at work, mean (SD)\* | 10.09 (6.18) | 8.70 (4.29) | <0.001 |

\* Two-sample t-test

**Table 4 Association of clinical severity with specific major co-morbid condition**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | Hypertension | | *P value* | Diabetes | | *P value* | *Heart disease* | | *P value* |
|  | Yes | No |  | Yes | No |  | *Yes* | *No* |  |
| **Joint pain before fever** | 125 (74.85) | 865 (74.83) | 0.995 | 91 (72.80) | 899 (75.04) | *0.583* | *28 (70.00)* | *962 (74.98)* | *0.475* |
| Pain score, mean (SD)\* | 8.54 (1.62) | 8.36 (1.61) | 0.190 | 8.72 (1.33) | 8.35 (1.63) | *0.004* | *8.85 (1.35)* | *8.37 (1.62)* | *0.003* |
| **Pain severity** |  |  |  |  |  |  |  |  |  |
| *Mild+ moderate* | 18 (10.91) | 158 (13.74) | 0.318 | 9 (7.20) | 167 (14.03) | *0.033* | *4 (10.00)* | *172 (13.49)* | *0.523* |
| *Severe* | 147 (89.09) | 992 (86.26) |  | 116 (92.80) | 1023 (85.97) |  | *36 (90.00)* | *1103 (86.51)* |  |
| **Pain duration in first two week,**  **mean (SD)** | 12.13 (3.55) | 11.02 (3.96) | <0.001 | 12.2 (3.39) | 11.0 (3.96) | <0.001 | 11.75 (3.52) | 11.14 (3.94) | 0.289 |
| **Joint stiffness** | 136 (81.44) | 860 (74.58) | 0.055 | 103 (82.40) | 893 (74.73) | 0.058 | 34 (85.00) | 962 (75.16) | 0.154 |
| **Joint swelling** | 117 (70.06) | 595 (51.47) | <0.001 | 90 (72.0) | 622 (51.92) | <0.001 | 27 (67.50) | 685 (53.39) | 0.078 |
| **Number of joints affected** |  |  |  |  |  |  |  |  |  |
| Oligoarthralgia | 62 (37.13) | 506 (43.66) | 0.111 | 46 (36.80) | 522 (43.46) | 0.152 | 9 (22.50) | 559 (43.47) | 0.008 |
| Polyarthralgia | 105 (62.87) | 653 (56.34) |  | 79 (63.20) | 679 (56.54) |  | 31 (77.50) | 727 (56.53) |  |
| **Major joint affected** |  |  |  |  |  |  |  |  |  |
| *Finger* | 141 (84.43) | 835 (72.04) | <0.001 | 105 (84.00) | 871 (72.52) | 0.006 | 37 (92.50) | 939 (73.02) | 0.006 |
| *wrist* | 132 (79.04) | 859 (74.12) | 0.171 | 97 (77.60) | 894 (74.44) | 0.439 | 36 (90.00) | 955 (74.26) | 0.024 |
| *spine* | 87 (52.10) | 609 (52.55) | 0.913 | 63 (50.40) | 633 (52.71) | 0.623 | 27 (67.50) | 669 (52.02) | 0.054 |
| *Knee* | 128 (76.65) | 853 (73.60) | 0.401 | 101 (80.80) | 880 (73.27) | 0.068 | 34 (85.00) | 947 (73.64) | 0.107 |
| *Ankle* | 137 (82.04) | 943 (81.36) | 0.834 | 102 (81.60) | 978 (81.43) | 0.963 | 37 (92.50) | 1043 (81.10) | 0.068 |
| *Feet* | 117 (70.06) | 737 (63.59) | 0.103 | 88 (70.40) | 766 (63.78) | 0.141 | 32 (80.00) | 822 (63.92) | 0.037 |
| *Shoulder* | 77 (46.11) | 434 (37.45) | 0.032 | 56 (44.80) | 455 (37.89) | 0.131 | 22 (55.00) | 489 (38.02) | 0.030 |
| Frequency of Swollen joints,  mean (SD)\* | 1.54 (1.46) | 1.04 (1.30) | <0.001 | 1.57 (1.38) | 1.05 (1.32) | <0.001 | 1.62 (1.60) | 1.08 (1.32) | 0.040 |
| **Joint redness** | 49 (29.34) | 326 (28.42) | 0.806 | 40 (32.00) | 335 (28.17) | 0.367 | 15 (38.46) | 360 (28.24) | 0.164 |
| **Difficulty in movement** |  |  |  |  |  |  |  |  |  |
| *Walking* | 86 (51.50) | 602 (51.94) | 0.914 | 65 (52.00) | 623 (51.87) | 0.979 | 27 (67.50) | 661 (51.40) | 0.045 |
| *Sitting* | 96 (57.49) | 487 (42.02) | <0.001 | 65 (52.00) | 518 (43.13) | 0.057 | 28 (70.00) | 555 (43.16) | <0.001 |
| *Standing* | 96 (57.49) | 525 (45.30) | 0.003 | 66 (52.80) | 555 (46.21) | 0.160 | 25 (62.50) | 596 (46.35) | 0.044 |
| Skin rash | 99 (71.32) | 823 (71.32) | 0.002 | 68 (54.40) | 854 (71.40) | <0.001 | 22 (55.00) | 900 (70.26) | 0.038 |
| Itching | 99 (59.28) | 709 (61.44) | 0.593 | 72 (57.60) | 736 (61.54) | 0.390 | 21 (52.50) | 787 (61.44) | 0.254 |
| Headache | 118 (70.66) | 906 (78.51) | 0.023 | 85 (68.00) | 939 (78.51) | 0.007 | 21 (52.50) | 1003 (78.30) | <0.001 |
| Myalgia | 115 (68.86) | 803 (69.83) | 0.800 | 79 (63.20) | 839 (70.39) | 0.096 | 29 (72.50) | 889 (69.62) | 0.696 |
| Red eye | 89 (53.94) | 659 (57.50) | 0.387 | 66 (53.23) | 682 (57.46) | 0.365 | 17 (44.74) | 731 (57.42) | 0.120 |
| Retro-orbital pain | 41 (24.55) | 400 (34.81) | 0.009 | 37 (29.84) | 404 (33.89) | 0.363 | 13 (32.50) | 428 (33.54) | 0.891 |
| Edema | 54 (32.53) | 185 (16.09) | <0.001 | 35 (28.45) | 204 (17.10) | 0.002 | 13 (32.50) | 226 (17.71) | 0.016 |
| **Gastrointestinal problems** |  |  |  |  |  |  |  |  |  |
| *Loss appetite* | 120 (71.86) | 803 (69.28) | 0.499 | 81 (64.80) | 842 (70.11) | 0.219 | 32 (80.00) | 891 (69.28) | 0.147 |
| *Nausea* | 87 (52.10) | 708 (61.09) | 0.027 | 66 (52.80) | 729 (60.70) | 0.086 | 23 (57.50) | 772 (60.03) | 0.748 |
| *Diarrhea* | 55 (32.93) | 278 (23.99) | 0.013 | 36 (28.80) | 297 (24.73) | 0.318 | 13 (32.50) | 320 (24.88) | 0.274 |
| *Abdominal cramp* | 24 (14.37) | 150 (12.94) | 0.609 | 14 (11.20) | 160 (13.32) | 0.504 | 6 (13.06) | 168 (13.06) | 0.721 |
| *Irregular bowel movement* | 18 (10.78) | 117 (10.10) | 0.785 | 14 (11.20) | 121 (10.07) | 0.692 | 5 (12.50) | 130 (10.11) | 0.622 |
| **Others (atypical symptoms)** |  |  |  |  |  |  |  |  |  |
| *Chest pain* | 22 (13.17) | 147 (12.68) | 0.859 | 19 (15.20) | 150 (12.49) | 0.387 | 9 (22.50) | 160 (12.44) | 0.060 |
| *Blurred vision* | 32 (19.16) | 198 (17.08) | 0.507 | 28 (22.40) | 202 (16.82) | 0.117 | 8 (20.00) | 222 (17.26) | 0.653 |
| *Memory loss* | 14 (8.38) | 87 (7.51) | 0.690 | 11 (8.80) | 90 (7.49) | 0.600 | 5 (12.50) | 96 (7.47) | 0.237 |
| *Pigmentation* | 29 (17.37) | 200 (17.35) | 0.995 | 23 (18.40) | 206 (17.24) | 0.744 | 5 (12.50) | 224 (17.5) | 0.411 |
| *Oral ulcer* | 54 (32.34) | 361 (31.26) | 0.779 | 42 (33.60) | 373 (31.16) | 0.576 | 11 (27.50) | 404 (31.51) | 0.590 |
| *Drop in blood pressure* | 45 (27.27) | 141 (12.20) | <0.001 | 33 (26.40) | 153 (12.79) | <0.001 | 16 (40.00) | 170 (13.27) | <0.001 |
| *Maculopapular eruption* | 6 (3.59) | 81 (7.03) | 0.095 | 8 (6.40) | 79 (6.61) | 0.928 | 2 (5.00) | 85 (6.64) | 0.681 |
| *Bleeding manifestations* | 7 (4.22) | 33 (2.86) | 0.340 | 3 (2.40) | 37 (3.09) | 1.000 | 0 (0.00) | 40 (3.13) | 0.256 |
| Days missed at work,  mean (SD)\* | 10.8 (7.34) | 8.82 (4.39) | <0.001 | 10.45 (6.15) | 8.92 (4.73) | 0.008 | 9.37 (5.95) | 9.06 (4.86) | 0.753 |

**Table 5 Association of clinical severity with specific co-morbid condition**

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | **Pain severity** | | *P value* |
|  | *Mild+ moderate* | *Severe* |  |
| Hypertension | 18 (10.23%) | 147 (12.91%) | 0.318 |
| Diabetes | 9 (5.11%) | 116 (10.18%) | 0.032 |
| Stroke | 1 (0.57%) | 8 (0.70%) | 0.841\* |
| Heart disease | 4 (2.27%) | 36 (3.16%) | 0.523 |
| CKD | 0 (0.00%) | 8 (0.70%) | 0.607\* |
| COPD | 0 (0.00%) | 9 (0.79%) | 0.617\* |
| Others | 14 (7.95%) | 87 (7.64%) | 0.883 |

\* Fisher's exact test

**Table 6:** Clinical manifestation of acute CHIKV infection among severe and non-severe patients

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Pain severity** | |  |
| **Variables** | ***Mild+ moderate*** | ***Severe*** | ***P* value** |
| **Comorbidity** | 37 (21.02%) | 310 (27.22%) | 0.083 |
| **Joint pain before fever** | 132 (75.00%) | 856 (75.22%) | 0.950 |
| Pain score, mean (SD)\* | 5.31 (4.39) | 8.86 (3.77) | <0.001 |
| **Pain duration in first two week, mean (SD)** | 9.72 (4.39) | 11.42 (3.77) | <0.001 |
| **Joint stiffness** | 109 (61.93%) | 884 (77.82%) | <0.001 |
| **Joint swelling** | 61 (34.66%) | 649 (57.03%) | <0.001 |
| **Number of joints affected** |  |  |  |
| Oligoarthralgia | 111 (63.07%) | 446 (39.16%) | <0.001 |
| Polyarthralgia | 65 (36.93%) | 693 (60.84%) |  |
| **Major joint affected** |  |  |  |
| *Finger* | 110 (62.50%) | 866 (76.03%) | <0.001 |
| *wrist* | 97 (55.11%) | 893 (78.40%) | <0.001 |
| *spine* | 70 (39.77%) | 626 (54.96%) | <0.001 |
| *Knee* | 106 (60.23%) | 875 (76.82%) | <0.001 |
| *Ankle* | 133 (75.57%) | 946 (83.06%) | 0.016 |
| *Feet* | 82 (46.59%) | 772 (67.78%) | <0.001 |
| *Shoulder* | 49 (27.84%) | 462 (40.56%) | <0.001 |
| Frequency of Swollen joints, mean (SD)\* | 0.55 (0.96) | 1.19 (1.37) | <0.001 |
| **Joint redness** | 27 (15.43%) | 348 (30.80%) | <0.001 |
| **Difficulty in movement** |  |  |  |
| *Walking* | 74 (42.05%) | 614 (53.91%) | 0.003 |
| *Sitting* | 50 (28.41%) | 531 (46.62%) | <0.001 |
| *Standing* | 59 (33.52%) | 560 (49.17%) | <0.001 |
| Skin rash | 121 (68.75%) | 794 (69.96%) | 0.746 |
| Itching | 102 (58.29%) | 700 (61.62%) | 0.400 |
| Headache | 132 (75.00%) | 885 (77.90%) | 0.390 |
| Myalgia | 101 (57.71%) | 814 (71.84%) | <0.001 |
| Red eye | 91 (51.70%) | 651 (57.87%) | 0.125 |
| Retro-orbital pain | 50 (28.57%) | 389 (34.36%) | 0.131 |
| Edema | 18 (19.29%) | 221 (19.54%) | 0.003 |
| **Gastrointestinal problems** |  |  |  |
| *Loss appetite* | 108 (61.36%) | 807 (70.85%) | 0.011 |
| *Nausea* | 105 (59.66%) | 684 (60.05%) | 0.921 |
| *Diarrhea* | 34 (19.32%) | 297 (26.06%) | 0.055 |
| *Abdominal cramp* | 14 (7.95%) | 160 (14.05%) | 0.026 |
| *Irregular bowel movement* | 16 (9.09%) | 119 (10.45%) | 0.581 |
| **Others (atypical symptoms)** |  |  |  |
| *Chest pain* | 18 (10.23%) | 151 (13.26%) | 0.264 |
| *Blurred vision* | 25 (14.20%) | 204 (17.91%) | 0.228 |
| *Memory loss* | 11 (6.25%) | 90 (7.90%) | 0.444 |
| *Pigmentation* | 27 (15.34%) | 202 (17.81%) | 0.422 |
| *Oral ulcer* | 42 (23.86%) | 371 (32.66%) | 0.019 |
| *Drop in blood pressure* | 14 (8.00%) | 170 (14.95%) | 0.014 |
| *Maculopapular eruption* | 9 (5.14%) | 78 (6.87%) | 0.392 |
| *Bleeding manifestations* | 9 (5.14%) | 31 (2.73%) | 0.084 |
| Days missed at work, mean (SD)\* | 7.45 (5.56) | 9.33 (4.75%) | <0.001 |

\* Two-sample t-test

**Table 7**: Multivariate analysis of major clinical variables with severe and non-severe patients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Crude Model | | Adjusted Model | |
| **Variables** | ***OR (95% CI)*** | ***P* value** | ***OR (95% CI)*** | ***P* value** |
| **Comorbidity** | 1.40 (0.97 - 2.09) | 0.084 |  |  |
| **Joint pain before fever** | 1.01 (0.69 - 1.45) | 0.950 |  |  |
| **Joint stiffness** | 2.16 (1.54 - 3.01) | <0.001 | 1.36 (0.92 – 1.98) | 0.116 |
| **Joint swelling** | 2.50 (1.80 - 3.50) | <0.001 | 1.69 (1.16 – 2.49) | 0.006 |
| **Polyarthralgia** | 2.65 (1.92 - 3.70) | <0.001 | 0.71 (0.39 – 1.27) | 0.247 |
| **Major joint affected** |  |  |  |  |
| *Finger* | 1.90 (1.36 - 2.65) | <0.001 | 0.97 (0.63 – 1.47) | 0.885 |
| *wrist* | 2.96 (2.13 - 4.11) | <0.001 | 2.36 (1.58 – 3.53) | <0.001 |
| *spine* | 1.85 (1.34 - 2.56) | <0.001 | 1.38 (0.94 – 2.03) | 0.104 |
| *Knee* | 2.19 (1.57 - 3.04) | <0.001 | 1.69 (1.14 – 2.49) | 0.008 |
| Ankle | 1.58 (1.08 - 2.29) | 0.017 | 1.03 (0.65 – 1.60) | 0.910 |
| *Feet* | 2.41 (1.75 - 3.33) | <0.001 | 1.91 (1.29 – 2.84) | 0.001 |
| *Shoulder* | 1.77 (1.25 - 2.53) | <0.001 | 1.22 (0.81 – 1.86) | 0.341 |
| **Joint redness** | 2.44 (1.61 - 3.82) | <0.001 | 1.73 (1.09 – 2.84) | 0.024 |
| **Difficulty in movement** |  |  |  |  |
| *Walking* | 1.61 (1.17 - 2.22) | 0.004 | 1.01 (0.68 – 1.48) | 0.986 |
| *Sitting* | 2.20 (1.56 - 3.14) | <0.001 | 1.59 (0.98 – 2.59) | 0.059 |
| *Standing* | 1.92 (1.38 – 2.69) | <0.001 | 0.97 (0.60 – 1.56) | 0.884 |
| Skin rash | 1.06 (0.75 - 1.48) | 0.746 |  |  |
| Itching | 1.15 (0.83 – 1.59) | 0.400 |  |  |
| Headache | 1.18 (0.81 – 1.69) | 0.391 |  |  |
| Myalgia | 1.87 (1.35 – 2.59) | <0.001 | 1.52 (1.06 – 2.16) | 0.022 |
| Red eye | 1.28 (0.93 – 1.76) | 0.125 |  |  |
| Retro-orbital pain | 1.31 (0.93 – 1.87) | 0.132 |  |  |
| Edema | 2.11 (1.31 – 3.64) | 0.004 | 1.13 (0.65 – 2.08) | 0.671 |
| **Gastrointestinal problems** |  |  |  |  |
| *Loss appetite* | 1.53 (1.10 – 2.12) | 0.011 | 1.24 (0.86 – 1.79) | 0.231 |
| *Nausea* | 1.02 (0.73 – 1.40) | 0.921 |  |  |
| *Diarrhea* | 1.47 (1.01 – 2.22) | 0.056 |  |  |
| *Abdominal cramp* | 1.89 (1.11 – 3.49) | 0.029 | 1.53 (0.84 – 3.01) | 0.187 |
| *Irregular bowel movement* | 1.17 (0.69 – 2.09) | 0.581 |  |  |
| **Others (atypical symptoms)** |  |  |  |  |
| *Chest pain* | 1.34 (0.82 – 2.32) | 0.265 |  |  |
| *Blurred vision* | 1.31 (0.86 – 2.11) | 0.229 |  |  |
| *Memory loss* | 1.29 (0.70 – 2.60) | 0.445 |  |  |
| *Pigmentation* | 1.20 (0.78 – 1.89) | 0.422 |  |  |
| *Oral ulcer* | 1.55 (1.08 – 2.26) | 0.020 | 1.30 (0.88 – 1.96) | 0.192 |
| *Drop in blood pressure* | 2.02 (1.18 – 3.73) | 0.016 | 1.57 (0.87 – 3.05) | 0.156 |
| *Maculopapular eruption* | 1.36 (0.71 – 2.96) | 0.394 |  |  |
| *Bleeding manifestations* | 0.52 (0.25 – 1.17) | 0.089 |  |  |

**Table 8**: Multivariate analysis of major clinical variables with hypertension and non-hypertension patients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Crude Model | | Adjusted Model | |
| **Variables** | ***OR (95% CI)*** | ***P* value** | ***OR (95% CI)*** | ***P* value** |
| **Pain severity** |  |  |  |  |
| *Severe* | 1.30 (0.79 – 2.25) | 0.319 |  |  |
| **Joint pain before fever** | 1.01 (0.69 – 1.47) | 0.995 |  |  |
| **Joint stiffness** | 1.49 (1.00 – 2.29) | 0.056 | 1.05 (0.66 - 1.69 | 0.846 |
| **Joint swelling** | 2.21 (1.56 – 3.16) | <0.001 | 1.80 (1.22 - 2.69 | 0.004 |
| **Polyarthralgia** | 1.31 (0.94 – 1.84) | 0.111 | 0.80 (0.48 - 1.35 | 0.400 |
| **Major joint affected** |  |  |  |  |
| *Finger* | 2.10 (1.38 – 3.33) | <0.001 | 1.83 (1.10 - 3.12 | 0.022 |
| *wrist* | 1.32 (0.90 – 1.98) | 0.172 | 1.07 (0.66 - 1.75 | 0.793 |
| *spine* | 0.98 (0.71 – 1.36) | 0.913 |  |  |
| *Knee* | 1.18 (0.81 – 1.74) | 0.402 |  |  |
| Ankle | 1.05 (0.70 – 1.62) | 0.834 |  |  |
| *Feet* | 1.34 (0.95 – 1.92) | 0.103 | 1.03 (0.68 - 1.58 | 0.895 |
| *Shoulder* | 1.43 (1.03 – 1.98) | 0.032 | 1.31 (0.88 - 1.94 | 0.177 |
| **Joint redness** | 1.05 (0.73 – 1.49) | 0.806 |  |  |
| **Difficulty in movement** |  |  |  |  |
| *Walking* | 0.98 (0.71 – 1.36) | 0.914 |  |  |
| *Sitting* | 1.87 (1.35 – 2.60) | <0.001 | 1.40 (0.87 - 2.27 | 0.164 |
| *Standing* | 1.63 (1.18 – 2.27) | 0.003 | 1.22 (0.76 - 1.96 | 0.419 |
| Skin rash | 0.59 (0.42 – 0.82) | <0.001 | 0.55 (0.38 - 0.79) | 0.001 |
| Itching | 0.91 (0.66 – 1.28) | 0.593 |  |  |
| Headache | 0.66 (0.46 – 0.95) | 0.024 | 0.91 (0.61 - 1.38) | 0.695 |
| Myalgia | 0.96 (0.68 – 1.37) | 0.800 |  |  |
| Red eye | 0.86 (0.62 – 1.20) | 0.387 |  |  |
| Retro-orbital pain | 0.61 (0.42 – 0.88) | 0.009 | 0.57 (0.37 - 0.84 | 0.006 |
| Edema | 2.51 (1.74 – 3.59) | <0.001 | 1.74 (1.15 - 2.61) | 0.008 |
| **Gastrointestinal problems** |  |  |  |  |
| *Loss appetite* | 1.13 (0.80 – 1.63) | 0.499 |  |  |
| *Nausea* | 0.69 (0.50 – 0.96) | 0.027 | 0.65 (0.46 - 0.93 | 0.019 |
| *Diarrhea* | 1.56 (1.09 – 2.20) | 0.013 | 1.53 (1.04 - 2.23) | 0.030 |
| *Abdominal cramp* | 1.13 (0.69 – 1.77) | 0.609 |  |  |
| *Irregular bowel movement* | 1.08 (0.62 – 1.78) | 0.785 |  |  |
| **Others (atypical symptoms)** |  |  |  |  |
| *Chest pain* | 1.04 (0.63 – 1.66) | 0.859 |  |  |
| *Blurred vision* | 1.15 (0.75 – 1.72) | 0.508 |  |  |
| *Memory loss* | 1.13 (0.60 – 1.97) | 0.690 |  |  |
| *Pigmentation* | 1.01 (0.64 – 1.52) | 0.995 |  |  |
| *Oral ulcer* | 1.05 (0.74 – 1.48) | 0.779 |  |  |
| *Drop in blood pressure* | 2.70 (1.82 – 3.95) | <0.001 | 1.98 (1.30 - 2.99) | 0.001 |
| *Maculopapular eruption* | 0.49 (0.19 – 1.06) | 0.101 | 0.56 (0.21 - 1.25) | 0.197 |
| *Bleeding manifestations* | 1.49 (0.60 – 3.25) | 0.343 |  |  |

**Table 9**: Multivariate analysis of major clinical variables with diabetes and non-diabetes patients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Crude Model | | Adjusted Model | |
| **Variables** | ***OR (95% CI)*** | ***P* value** | ***OR (95% CI)*** | ***P* value** |
| **Pain severity** |  |  |  |  |
| *Severe* | 2.10 (1.11 – 4.54) | 0.037 | 0.88 (0.51 - 1.60) | 0.662 |
| **Joint pain before fever** | 0.89 (0.59 – 1.36) | 0.583 |  |  |
| **Joint stiffness** | 1.58 (1.00 – 2.62) | 0.059 | 1.11 (0.70 - 1.80) | 0.675 |
| **Joint swelling** | 2.38 (1.60 – 3.62) | <0.001 | 1.84 (1.24 - 2.76) | 0.003 |
| **Polyarthralgia** | 1.32 (0.91 – 1.94) | 0.153 | 0.75 (0.44 - 1.28) | 0.290 |
| **Major joint affected** |  |  |  |  |
| *Finger* | 1.99 (1.24 – 3.35) | 0.006 | 1.97 (1.17 - 3.40) | 0.012 |
| *wrist* | 1.19 (0.78 – 1.88) | 0.439 |  |  |
| *spine* | 0.91 (0.63 – 1.32) | 0.623 |  |  |
| *Knee* | 1.54 (0.98 – 2.49) | 0.070 | 1.16 (0.74 - 1.86) | 0.524 |
| Ankle | 1.01 (0.64 – 1.66) | 0.963 |  |  |
| *Feet* | 1.35 (0.91 – 2.04) | 0.142 | 1.09 0.71 1.69 | 0.701 |
| *Shoulder* | 1.33 (0.92 – 1.93) | 0.132 | 1.34 0.91 1.99 | 0.142 |
| **Joint redness** | 1.20 (0.80 – 1.77) | 0.368 |  |  |
| **Difficulty in movement** |  |  |  |  |
| *Walking* | 1.01 (0.70 – 1.46) | 0.978 |  |  |
| *Sitting* | 1.43 (0.99 – 2.07) | 0.058 | 1.53 0.95 2.47 | 0.079 |
| *Standing* | 1.30 (0.90 – 1.89) | 0.161 | 1.22 0.76 1.96 | 0.414 |
| Skin rash | 0.48 (0.33 – 0.70) | <0.001 | 0.54 0.38 0.78 | 0.001 |
| Itching | 0.85 (0.59 – 1.24) | 0.390 |  |  |
| Headache | 0.58 (0.39 – 0.88) | 0.008 | 0.81 0.55 1.22 | 0.303 |
| Myalgia | 0.72 (0.49 – 1.07) | 0.097 | 0.85 0.58 1.25 | 0.410 |
| Red eye | 0.84 (0.58 – 1.22) | 0.366 |  |  |
| Retro-orbital pain | 0.83 (0.55 – 1.23) | 0.363 |  |  |
| Edema | 1.93 (1.25 – 2.91) | 0.002 | 1.72 1.14 2.58 | 0.009 |
| **Gastrointestinal problems** |  |  |  |  |
| *Loss appetite* | 0.78 (0.54 – 1.16) | 0.220 |  |  |
| *Nausea* | 0.72 (0.50 – 1.05) | 0.087 | 0.65 0.46 0.94 | 0.020 |
| *Diarrhea* | 1.23 (0.81 – 1.84) | 0.319 |  |  |
| *Abdominal cramp* | 0.82 (0.44 – 1.42) | 0.504 |  |  |
| *Irregular bowel movement* | 1.13 (0.60 – 1.96) | 0.692 |  |  |
| **Others (atypical symptoms)** |  |  |  |  |
| *Chest pain* | 1.26 (0.73 – 2.06) | 0.388 |  |  |
| *Blurred vision* | 1.43 (0.90 – 2.20) | 0.118 | 1.06 0.67 1.65 | 0.797 |
| *Memory loss* | 1.19 (0.59 – 2.20) | 0.601 |  |  |
| *Pigmentation* | 1.08 (0.66 – 1.71) | 0.744 |  |  |
| *Oral ulcer* | 1.12 (0.75 – 1.64) | 0.576 |  |  |
| *Drop in blood pressure* | 2.45 (1.57 – 3.73) | <0.001 | 1.95 1.27 2.94 | 0.002 |
| *Maculopapular eruption* | 0.97 (0.42 – 1.93) | 0.928 |  |  |
| *Bleeding manifestations* | 0.77 (0.18 – 2.17) | 0.667 |  |  |

**Table 10s**: Multivariate analysis of major clinical variables with heart disease and non-heart disease patients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Crude Model | | Adjusted Model | |
| **Variables** | ***OR (95% CI)*** | ***P* value** | ***OR (95% CI)*** | ***P* value** |
| **Pain severity** |  |  |  |  |
| *Severe* | 1.40 (0.55 - 4.73) | 0.525 |  |  |
| **Joint pain before fever** | 0.78 (0.40 – 1 .61) | 0.476 |  |  |
| **Joint stiffness** | 1.87 (0.84 - 4.99) | 0.161 | 1.03 (0.65 - 1.67) | 0.911 |
| **Joint swelling** | 1.81 (0.95 – 3.66) | 0.082 | 1.84 (1.23 - 2.78) | 0.003 |
| **Polyarthralgia** | 2.65 (1.30 – 5.95) | 0.011 | 0.86 (0.45 - 1.62) | 0.636 |
| **Major joint affected** |  |  |  |  |
| *Finger* | 4.56 (1.63 – 18.97) | 0.012 | 1.80 (1.09 - 3.07) | 0.025 |
| *wrist* | 3.12 (1.24 – 10.49) | 0.032 | 1.09 (0.67 - 1.81) | 0.724 |
| *spine* | 1.92 (1.00 – 3.86) | 0.058 | 0.88 (0.60 - 1.31) | 0.532 |
| *Knee* | 2.03 (0.91 – 5.41) | 0.114 | 1.04 (0.67 - 1.64) | 0.870 |
| Ankle | 2.87 (1.03 – 11.97) | 0.081 | 0.74 (0.45 - 1.26) | 0.263 |
| *Feet* | 2.26 (1.08 – 5.30) | 0.042 | 1.12 (0.72 - 1.74) | 0.620 |
| *Shoulder* | 1.99 (1.06 – 3.79) | 0.033 | 1.28 (0.86 - 1.91) | 0.216 |
| **Joint redness** | 1.59 (0.81 – 3.03) | 0.167 | 0.89 (0.58 - 1.33) | 0.566 |
| **Difficulty in movement** |  |  |  |  |
| *Walking* | 1.96 (1.02 – 3.96) | 0.049 | 0.61 (0.41 - 0.91) | 0.015 |
| *Sitting* | 3.07 (1.59 – 6.33) | 0.001 | 1.70 (1.06 - 2.77) | 0.031 |
| *Standing* | 1.93 (1.02 – 3.78) | 0.047 | 1.34 (0.83 - 2.17) | 0.236 |
| Skin rash | 0.52 (0.27 – 0.99) | 0.042 | 0.54 (0.37 - 0.78) | 0.001 |
| Itching | 0.69 (0.37 – 1.31) | 0.256 |  |  |
| Headache | 0.31 (0.16 – 0.58) | <0.001 | 0.76 (0.51 - 1.15) | 0.193 |
| Myalgia | 1.15 (0.59 – 2.43) | 0.696 |  |  |
| Red eye | 0.60 (0.31 – 1.15) | 0.123 | 0.90 (0.63 - 1.29) | 0.555 |
| Retro-orbital pain | 0.95 (0.47 – 1.83) | 0.891 |  |  |
| Edema | 2.24 (1.10 – 4.32) | 0.019 | 1.68 (1.10 - 2.53) | 0.015 |
| **Gastrointestinal problems** |  |  |  |  |
| *Loss appetite* | 1.77 (0.85 – 4.17) | 0.152 | 1.05 (0.72 - 1.55) | 0.821 |
| *Nausea* | 0.90 (0.48 – 1.73) | 0.748 |  |  |
| *Diarrhea* | 1.45 (0.72 – 2.80) | 0.277 |  |  |
| *Abdominal cramp* | 1.17 (0.44 – 2.65) | 0.721 |  |  |
| *Irregular bowel movement* | 1.27 (0.43 – 3.02) | 0.623 |  |  |
| **Others (atypical symptoms)** |  |  |  |  |
| *Chest pain* | 2.04 (0.90 – 4.20) | 0.066 | 1.07 (0.62 - 1.77) | 0.806 |
| *Blurred vision* | 1.20 (0.51 – 2.51) | 0.653 |  |  |
| *Memory loss* | 1.77 (0.60 – 4.24) | 0.243 |  |  |
| *Pigmentation* | 0.67 (0.23 – 1.59) | 0.414 |  |  |
| *Oral ulcer* | 0.82 (0.39 – 1.62) | 0.591 |  |  |
| *Drop in blood pressure* | 4.36 (2.23 – 8.31) | <0.001 | 2.05 (1.34 - 3.10) | 0.001 |
| *Maculopapular eruption* | 0.74 (0.12 – 2.47) | 0.682 |  |  |
| *Bleeding manifestations* | - | - |  |  |