**SUPPLEMENTARY DATA**

**Population & Methods**

**Study design**

During the entire month of Ramadan 2017 (27th of May to 24th of June), the elapsed time from dawn to sunset was 28636 minutes (~16 hours and half).

During the 60-day study-period (15th of May to 13th of July), the ambient temperature and humidity means ± standard-deviation were 27.3±3.3 °C and 62.1±9.0%, respectively.

**Results**

The information provided about the ambient temperatures and the humidity throughout the three sessions was presented in **Box 1**.

Compared to the Before-R and to the After-R sessions, the ambient temperature during the End-R session was significantly higher and lower, respectively.

Humidity was significantly higher during the End-R session compared to the After-R one.

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| **Box 1. Ambient temperature and humidity during the three sessions.** | | | | |
|  | **Before-R** | **End-R** | **After-R** | **ANOVA** |
| Ambient temperature (°C) | 23.1±0.9 | 27.6±0.9 | 32.8±1.4 | <0.0001**\*abc** |
| Humidity (%) | 65.8±5.8 | 70.3±5.3 | 50.3±7.1 | 0.0007**\*bc** |
| **ANOVA:** analysis of variance. **R:** Ramadan. Data were mean±SD.  \*p <0.05: Friedman ANOVA between the 3 sessions.  p <0.05 (Wilcoxon test): aBefore-R vs. End-R; **b**Before-R vs. After-R; **c**End-R vs. After-R. | | | | |

**Discussion**

The main characteristics and results of some of similar studies **(Al Hourani, Atoum, Akel, Hijjawi, & Awawdeh, 2009; Askari, Alavinezhad, & Boskabady, 2016; Sarraf-Zadegan et al., 2000; Sedaghat et al., 2017)** are detailed in **Tables 1S** and **2S**.

The spirometric tests were executed according to the international guidelines in a sitting position **(Miller et al., 2005)**. In two relative studies **(Askari et al., 2016; Zouari et al., 2018)**, tests were performed in a standing position. The last could overestimate some data **(Lalloo, Becklake, & Goldsmith, 1991)**.

CRP has a link with COPD severity (*eg;* alteration in energy metabolism, respiratory function impairment, and intensity of respiratory symptoms) **(Corsonello et al., 2011)**, is available in real time and has lower costs particularly in developing countries **(Helal et al., 2012)**.

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| **Table 1S. Characteristics of the main published studies aiming to evaluate the effects of Ramadan-fasting on the inflammatory biomarkers and/or the hematological indices of healthy and asthmatic adults.** | | | | |
| **Reference** | **Sarraf-Zadegan et al. (2000)** | **Al Hourani et al. (2009)** | **Sedaghat et al. (2017)** | **Askari et al. (2016)** |
| **Town (country)** | .Isfahan (Iran) | .Zarqa (Jordan) | .Mashhad (Iran) | .Mashhad (Iran) |
| **Ramadan year** | .NR | .2004 | .2015 | .NR |
| **Study timing** | .4 p.m for the End-R session  .After 12 hours of fasting for the After-R session | .NR | .8-10 a.m | .NR |
| **Average ambient temperature** | .NR | .NR | .NR | .NR |
| **Average ambient pressure** | .NR | .NR | .NR | .NR |
| **Evaluation sessions’ number** | .End-R (26th day)  .After-R (8 weeks after) | .Before-R (1 week before)  .Mid-R (week non-précised) | .Before-R (1 week before)  .After-R (1 week after) | .Before-R (3-5 days before)  .After-R (week non-précised) |
| **Elapsed fasting time** | .NR | .8 hours | .NR | .NR |
| **STUDY CHARACTERISTICS** | | | | |
| **Ethnic** | .Farsi | .Arab | .Farsi | .Farsi |
| **Sample size (Male/Female)** | .50 (22/28) | .57 (0/57) | .89 (51/38) | .15 (15/0) |
| **Sample size calculation** | .No | .No | .No | .Yes |
| **Randomization** | .Yes (sample random sampling) | .No | .No | .No |
| **Recruitment method** | .Employees of institutes related to local University of Medical Sciences | .Students of a local University | .NR | .NR |
| **Inclusion criteria** | .Healthy | .Healthy | .Healthy  .Sedentary life style | .Moderate to severe asthma  .≥ 2 following symptoms: recurrent wheeze, cough or chest-tightness at rest; nocturnal or early morning wheeze, cough or chest-tightness; and wheeze or cough during exercise  .FEV1 and PEF < 80%  .No history or symptoms of cardiovascular or other respiratory diseases that required treatment (excluding the common cold). |
| **Non-inclusion and exclusion criteria** | .Medication-use affecting the studied parameters |  | .Systemic disease  .Special drug-use  .History of previous surgery  .Absence during the 2nd session | .Recent respiratory infection  .Chest X-ray abnormality  .Smoking  .High blood pressure  .Diabetes |
| **Table 1S. Continued.** | | | | |
|  | **Sarraf-Zadegan et al. (2000)** | **Al Hourani et al. (2009)** | **Sedaghat et al. (2017)** | **Askari et al. (2016)** |
| **Ramadan experience** | .NR | .NR | .NR | .NR |
| **Fasting days** | .Whole the month | .NR | .At least 20 days | .NR |
| **Applied questionnaire** | .NR | .Yes (no reference cited) | .NR | .NR |
| **Control-group** | .No | .No | .No | .Yes (14 healthy) |
| **ANTHROPOMETRIC DATA** | | | | |
| **Age (yrs)** | .30-45a | .21.6±4.14b  .18-29 a | .35.51±8.93b (for males)  .20-50 a | .49.28±12.54b |
| **Height (cm)** | .NR | .NR | .174±6b (for males) | .166.38±8.66b |
| **Weight (kg)** | .NR | .NR | .84.68±14.40b (for males) | .NR |
| **BMI (kg/m2)** | .NR | .NR | .27.71±4.57b (for males) | .NR |
| **INFLAMMATORY BIOMARKERS AND HAEMATOLOGICAL INDICES** | | | | |
| **Collected data** | .Hematological data (Hb, Ht, RBC, WBC, Plt) | .Hematological data (Hb, Ht, RBC, Plt) | .Hematological data (Hb, Ht, RBC, WBC, Plt, MCV, MCH, MCHC) | .Hematological data (Hb, Ht, RBC, WBC, Plt, MCV, MCH, MCHC, neutrophil, lymphocyte, monocyte, eosinophil)  .Inflammatory biomarkers (ESR-1, ESR-2, hs-CRP) |
| **Statistical Analyses** | .Paired t-test: compare the 2 sessions’ data. | .Paired t-test: compare the 2 sessions’ data. | .Paired t-test: compare the 2 sessions’ data with normal distribution.  .Wilcoxon signed-rank: compare the 2 sessions’ non parametric data | .Unpaired t-test: compare the 2 groups’ data.  .Paired t-test: compare the 2 sessions’ data for each group. |
| **ESR:** erythrocyte sedimentation rate. **FEV1:** first second forced expiratory volume. **Hb:** hemoglobin. **hs-CRP:** high sensitivity C-reactive protein. **Ht:** hematocrit. **MCH:** mean-corpuscular hemoglobin. **MCHC:** mean-corpuscular hemoglobin concentration. **MCV:** mean-corpuscular volume. **NR:** not-reported. **PEF:** peak expiratory flow. **Plt:** platelets. **RBC:** red blood cells. **WBC:** white blood cells.  **Data were: a**Minimum-maximum; **b**Mean±standard deviation. | | | | |

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| **Table 2S. Main results of the published studies aiming to evaluate the effects of Ramadan-fasting on the inflammatory biomarkers and/or the hematological indices of healthy and asthmatic adults.** | | | | | |
|  | | **Before-R** | **Mid-R** | **End-R (last week)** | **After-R** |
| **Sarraf-Zadegan et al.[(2000)** | Weight (kg) |  |  | .NR | .NR |
| Hb (g/dL) |  |  | 13.61±1.54 | 14.11±1.58**a** |
| Ht (%) |  |  | 40.92±4.09 | 42.15±4.78**a** |
| RBC (1012/L) |  |  | 4.42±0.56 | 4.89±0.69**a** |
| WBC (109/L) |  |  | 5.86±1.42 | 5.61±1.14 |
| Plt (109/L) |  |  | 240.29±43.84 | 200.65±46.05**a** |
| **Conclusion** | All the above data (except WBC) showed significant changes when compared with the Ramadan-fasting period and 2 months later. | | | |
| **Al Hourani et al.(2009)** | Weight (kg) | NR | NR |  |  |
| Hb (g/dL) | 12.3±2.0 | 12.3±1.3 |  |  |
| Ht (%) | 35.8±4.1 | 36.0±3.3 |  |  |
| RBC (106/mm3) | 4.30±0.69 | 4.43±0.37 |  |  |
| Plt (1000) | 165.1±66.0 | 126.9±80.3**b** |  |  |
| **Conclusions** | Platelets count was significantly decreased during Ramadan while other data remained relatively stable. | | | |
| **Sedaghat et al.(2017)** | Weight (kg) | 84.68±14.40 |  |  | 83.62±13.95**c** |
| Hb (g/L) | 15.00±1.07 |  |  | 15.08±1.08 |
| Ht (%) | 44.08±2.40 |  |  | 43.53±2.30**c** |
| RBC (1012/L) | 5.11±0.32 |  |  | 5.08±0.32 |
| WBC (109/L) | 1770.6±26.63 |  |  | 1378.79±6.36 |
| Plt (n/L) | 226.67±44.38 |  |  | 226.90±46.50 |
| MCV (fL) | 86.20±3.22 |  |  | 85.71±3.24**c** |
| MCH (pg/cell) | 29.34±1.65 |  |  | 29.67±1.54**c** |
| MCHC (g/dL) | 34.22±1.83 |  |  | 34.63±1.48**c** |
| **Conclusions** | Ht, RBC, MCV and weight decreased After-R, while MCH and MCHC increased. No changes were seen in Hb, Plt and WBC. | | | |
| **Table 2S. Continued.** | | | | | |
| **Askari et al.(2016)** |  | **Before-R** | **Mid-R** | **End-R (last week)** | **After-R** |
| Weight (kg) | NR |  |  | NR |
| Hb (g/dL) | 13.25±0.98 |  |  | 14.15±1.17 |
| Ht (%) | 42.51±2.69 |  |  | 43.97±3.48 |
| RBC (mil/µL) | 4.71±0.38 |  |  | 4.80±0.42 |
| Plt (/mm3) | 278.615±36.769 |  |  | 263.308±31.884d |
| MCV (fl) | 90.63±3.78 |  |  | 91.73±4.44 |
| MCH (pg) | 28.15±1.46 |  |  | 29.52±1.52d |
| MCHC (g/d) | 31.11±1.10 |  |  | 32.16±0.53d |
| WBC (/mm3) | 7157±1073 |  |  | 7769±1116e |
| Neutrophil (%) | 59.70±8.68 |  |  | 56.55±4.82 |
| Lymphocyte (%) | 33.18±7.72 |  |  | 31.30±5.55 |
| Monocyte (%) | 4.63±1.71 |  |  | 7.70±2.19d |
| Eosinophil (%) | 2.40±1.48 |  |  | 3.73±2.16 |
| ESR-1 (mm/hr) | 17.08±16.67 |  |  | 10.62±9.76 |
| ESR-2 (mm/hr) | 32.62±24.87 |  |  | 21.54±16.15e |
| hs-CRP (ng/ml) | 2.86±0.82 |  |  | 1.71±0.63d |
| **Conclusion** | .The MCH and MCHC values were significantly increased, but Plt value was reduced compared to Before-R session. There was no statistical difference in variations of hematological indices between asthmatic and healthy group during Ramadan.  .After-R total WBC and eosinophil were increased, but monocyte count was increased significantly as compared to Before-R session. Total WBC count was significantly higher in asthmatic patients compared to healthy control group After-R session.  .ESR-2 value was lower compared to healthy control group After-R session.  .The values of hs-CRP in the asthmatics were significantly reduced After-Ramadan. However, the variation of hs-CRP of the asthmatic group during RF period was non-significantly higher than healthy control group. | | | |
| **For abbreviations, see table 1S.** All data were mean ± SD.  **a**p< 0.05 (Paired-test): End-R vs. After-R (Sarraf-Zadegan et al.).  **b**p< 0.05 (Paired-test): Before-R vs. Mid-R (Al Hourani et al.).  **c**p< 0.05 (Paired-test or Wilcoxon signed-rank:): Before-R vs. After-R (Sedaghat et al.).  dp< 0.05 (Paired t-test): Before-R vs. After-R for the asthmatic group (Askari et al.)  ep< 0.05 (Unpaired t-test): asthmatic vs. healthy for the same session (Askari et al.) | | | | | |

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