syndrome. We also determined the association between BMI and ferritin as well as the ferritin level that best predicted a hb level below our populations reference interval (RI) lower limit.

Methods

We used participant data collected as part of a global study conducted by the International Federation of Clinical Chemistry (IFCC) to determine adult reference intervals (RIs) for common laboratory tests. Kenya is one of the participating countries and recruited adults aged 18–65 years using a harmonized inclusion and exclusion criteria. Ferritin levels were determined using a Beckman Coulter DXI analyzer, ultrasensitive CRP (usCRP) using a Beckman Coulter AU5800, while CBC analysis was performed on a Beckman Coulter ACT 5 DIFF CP analyzer (Brea, California, US). Mann-Whitney *U* test was used to compare hb, ferritin and usCRP levels between males and females. The correlations between hb and ferritin, usCRP and ferritin were determined using Pearson's correlation. Comparison of ferritin across BMI categories of normal, overweight and obese was done using Kruskal-Wallis H and post hoc assessment using Tukey's test. Receiver operating curve (ROC) and Youden index was used to determine the ferritin cut-off that best predicted IDA.

Results

We reviewed data from 528 participants who had laboratory results for all analytes of interest. There were 254 males and 274 females with median ages (interquartile range (IQR)) of 38 (19) and 39 (20) years respectively. There was a statistically significant difference in median hb ($U = 4751$, $p = .000$), ferritin ($U = 11{,}128$, $p = .000$) and usCRP ($U = 27{,}176$, $p = .000$) between males and females. The median (IQR) levels for males and females were 16.7 (1.3) and 14.2 (1.6) g/dl for hb, 122 (142) and 28.5 (51) μg/L for ferritin, 0.96 (2) and 1.66 (3.14) mg/L for usCRP respectively. The median (IQR) BMI for males and females was 24.89 (5.64) and 26.08 (6.23) kg/m^2 respectively. There was a positive correlation between hb and ferritin which was statistically significant ($r = 0.370$, $n = 528$, $p = .000$). The correlation between usCRP and ferritin was not statistically significant ($r = 0.039$, $n = 528$, $p = .373$). The difference in ferritin levels across BMI categories was statistically significant ($\chi^2(2) = 6.893$, $p = .032$) with ferritin levels for both overweight ($p = .011$) and obese ($p = .024$) being higher than those with a normal BMI. The difference in ferritin levels between overweight and obese categories was not statistically significant ($p = .917$). A ferritin level below 8.5 μg/L best predicted a reduced hb defined as <12 g/dL for females and 14.5 g/dL in males with a sensitivity of 94% and specificity of 71%. Using a hb of 11 g/dL to define IDA, a ferritin level of 6.5 μg/L was the best predictor with a sensitivity and specificity of 95.7% and 93.8% respectively.

Conclusions

As expected, a decline in ferritin level was associated with a reduction in hb with a ferritin level below 8.5 μg/L having the highest sensitivity and specificity for diagnosing IDA as defined using the lower RI limits that we have established for our population. Using the WHO hb cut-off of 11 g/dL to define IDA, the optimal ferritin cut-off would be 6.5 μg/L. These values are much lower than the 15 μg/L recommended by WHO and the 30 μg/L recommended when assessing iron deficiency in a population with a high prevalence of inflammation. This highlights the importance of population specific ferritin cut-offs for assessment of iron deficiency to avoid misdiagnosis.

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W157

Investigation of IL-18 and MCP-1 levels in Polycystic Ovary Syndrome

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Background-aim

Polycystic Ovary Syndrome (PCOS) affects 4–8% of pre-menopausal women and it is the most common endocrine disorder during childbearing age.Although many diagnostic criteria have been established for PCOS within the past century and no consensus has yet been reached, it has been found that PCOS in the long term does not only affect reproductive health, but also insulin resistance and inflammation are risk factors for cardiovascular diseases, metabolic syndrome and diabetes.The aim of this study was to investigate the cytokine levels and the progress of the proinflammation process.

Methods

The study was carried out on patients who were referred to Istanbul University Cerrahpaşa Medical Faculty, Department of Obstetrics and Gynecology, Infertility and IVF clinic with PCOS complaint. The control group was formed from fertile and non-chronic women. After taking the blood of the patients, the serum part was separated by centrifugation and stored at −30 °C in appropriate ependorfs. Analysis of MCP-1 and IL-18 levels in serum samples from patients and control group was performed by ELISA. Washing of ELISA plates was carried out on Biotek brand ELX-50 model and reading on Biotek ELX-800 model. We studied 33 patients from 31 control groups. The mean age of the patients is 26 ± 4.5 and the mean age of the controls is 25 ± 6 years. The Body Mass Index (BMI) is 24 ± 4 kg / m2 in patients and 22 ± 3 kg / m2 in control group. The levels obtained from the control group and individuals with PCOS were compared with each other to reveal statistical findings. After the approval of the Ethics Committee of the Istanbul University Cerrahpaşa Medical Faculty, the samples were taken after the approval of 3711. After sufficient samples were collected, IL-18 and MCP-1 analyzes were performed according to the information in the ELISA kit prospectus. The level of the control group obtained from the ELISA tests and the levels obtained from individuals with PCOS were compared with each other and the statistical package for the Social Sciences (SPSS) Mann-Whitney *U* test was used to determine whether there was a statistically significant difference between them. The *p* value to be calculated <0.05 was considered to be significant. All values are listed as mean ± standard deviation. Correlation regression tests were applied to determine whether groups changed together.

Results

No significant difference was observed between PCOS and control groups in age, BMI, IL-18, MCP-1 ($p > .05$). There was a significant positive correlation between MCP-1 and BMI ($r = 0.496$ pδ0,01) in the control group.

Conclusions

It is a proinflammatory cytokine in IL-18 and it is an inflammatory process in PCOS and it is stated that IL-18 level is higher than

the control group. This result confirms that IL-18 is also secreted from adipose tissue, but it does not show release due to PCOS alone. In our study, there was no difference in IL-18 levels between the control and PCOS patients. There was a significant positive relationship between MCP-1 and BMI ($r = 0.496$ pð0,01) in the control group. Based on this result, we can say that the increase in BMI in healthy individuals triggered angiogenesis with the increase of MCP-1, an important cytokine. Since there are studies on elevation of MCP-1 with the increase of adipose tissue, it can be thought that the increase in BMI with MCP-1 is related to PCOS-independent adipose tissue increase. As a result, the mechanism of PCOS can be better illuminated by staging.

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W158

Interleukin 8, total antioxidant capacity and melatonin in neurocritical patients

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Background-aim

The production of inflammatory cytokines and reactive oxygen species are increased after Traumatic brain injury (TBI), and directly related with worse outcome. The aim of the present study is the evaluation of the effect of MLT over peripheral blood mononuclear cells (PBMC) from TBI patients, focusing in the production of IL8, an important pro inflamatory cytokine, and in the total antioxidant capacity (TAC).

Methods

severe TBI (GCS 3–8) patients admitted to the Neurocritical Care Unit were included. Blood samples were drawn within the first 48 h after the injury (sample A) and at 48-96 h (sample B). For the isolation of PBMC, CPT tubes containing ficoll gradient, were used. Cells were spread 1x106cells/mL. Cell cultures were stimulated with a mitogenic agent, PHA (8 μg/mL) in the presence or absence of MLT (10–4 M), kept in humid atmosphere, 5% CO2 and 37 °C for 48 h, after which supernatant were collected for subsequent quantification of IL8 and TAC (quantified as "μM copper reducing equivalents") (CRE).

Results

We included 26 TBI patients and 7 healthy controls. Patients showed higher IL8 levels compared to healthy group both in sample A ($p = .03$) and sample B ($p = .001$). The administration of MLT decreased IL8 production, hence reduced inflammation, reaching statistical significance patient's sample B ($p = .002$) and control sample ($p = .028$).

- TBI sample A:
  - o No MLT: 209590.55 pg/mL (IQR 157054.84–307,032.35).
  - o With MLT: 203677.73 pg/mL (IQR 159642.85–273,655.60).
- TBI sample B:
  - o No MLT: 193599.73 pg/mL(IQR 162684.07–257,997.52).
  - o With MLT: 164049.30 pg/mL (IQR 113577.48–242,150.55).
- Healthy controls:
  - o No MLT: 101059.53 pg/mL (IQR 82191.46–117,624.38).
  - o With MLT: 66636.95 pg/mL (IQR 59539.88–83,314.68).

Regarding TAC, we did not observe statistically significant differences between patients and con-trols. Nevertheless, MLT increased antioxidant capacity in all cultures performed:

- TBI sample A:
  - o No MLT: 184.91 CRE (IQR 146.39–233.45).
  - o With MLT: 269.86 CRE (IQR 235.22–367.29) ($p < .001$).
- TBI sample B:
  - o No MLT: 198.69 CRE (IQR 152.17–215.18).
  - o With MLT: 298.41 CRE (IQR 245.73–348.56) ($p < .001$).
- Healthy controls:
  - o No MLT: 177.06 CRE (IQR 131.26–191.70).
  - o With MLT: 284.21 (IQR 229.51–344.40) ($p = .018$).

Conclusions

These preliminary results confirm the antioxidant and anti-inflammatory capacity of MLT in PBMC cultures of severe TBI patients, highlighting MLT as a possible therapeutic strategy to minimize morbidity and mortality in TBI patients.

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W159

Biomarkers of oxidative stress in the first trimester of high-risk pregnancy

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Background-aim

Pre-eclampsia and pregnancy hypertension are a major cause of maternal mortality and morbidity, and are often the cause of premature childbirth. Oxidative stress is considered to be one of the factors inducing this pathology. The aim of this study was to evaluate the biochemical parameters of oxidative stress in the first trimester of pregnancy in patients with some risk of developing preeclampsia.

Methods

The study involved two groups of pregnant women: the study group ($n = 90$) with some risk condition of developing preeclampsia, and the control group ($n = 44$) of healthy pregnant women matched by ages. The study included pregnant women with singleton pregnancy in the early first trimester between 11 and 14 weeks of pregnancy. We measured serum total oxidative status (TOS), prooxidative-antioxidative balance (PAB) total antioxidative