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Life-long oral anticoagulant therapy and rupture of corpus luteum

Yaşam boyu oral antikoagülan tedavisi ve korpus luteum rüptürü

Mechanical heart valve prostheses have a high thromboembolic potential. There is therefore no doubt that those patients need to receive life-long oral anticoagulant (OAC), which, unfortunately, is associated with an increased risk of hemorrhagic complications (1).

Ovarian hemorrhages is rarely seen in healthy women and usually has a little clinical importance. However, more serious and even life-threating bleeding episodes have been described in women treated with anticoagulants (2, 3).

We reported results of ten patients under sodium warfarin treatment, who presented with ovarian hemorrhage. Therefore, we aimed to take attention on this life threating rare condition.

Between January 2008 to July 2009, ten charts of patients who had been receiving OAC for prosthetic heart valves and treated surgically for intraabdominal hemorrhage as a result of ruptured corpus luteum were analyzed retrospectively. Additionally, follow-up treatment modalities were assessed by phone interview.

Patients' demographic data, biochemical and hematologic parameters, surgical procedure, volume of intraabdominal bleeding, transfusion characteristics are demonstrated in Table 1. None of patients was using effective contraceptive method at time of admission.

All patients were discharged with advice of a depot medroxyprogesterone acetate (DPMA) for ovulation suppression in follow-up treatment. Nine of the ten patients were contacted by phone interview in order to determine if they used follow-up treatment or not. The time interval between operation time and phone interview ranged between 32-43 months. Eight women started to use DMPA a month after the operation till day of interview. None of these patients experienced any ovarian bleeding episode until now. 3 of them also stated that they have been amenorrheic since 6 months after DMPA, and 5 of them mentioned oligomenorrhea. Bloating, headache and breast tenderness were the reported complaints in 2, 2, and 1 patients, respectively.

Table 1. Patients characteristics and surgical properties

Case	Age	Gynecologic history	Duration of OAC (Months)	Admission hemoglobin g/dL	Admission INR	Amount of hemoperitoneum	Surgery	Require second surgery	Blood transfusion
1•	33	G1P1	60	7.4	4.3	2000 cc + 800 cc	Suturing	Yes (SOF)	8 U FFP 3 U RBC
2*◆	43	G3P2	120	8.5	2.8	800 cc	SOF	No	4 U FFP 2 U RBC
3*◆	35	G2P2	83	7.9	>5	1500 cc	Suturing	No	7 U FFP 3 U RBC
4•	33	G6P4	22	7	>5	2000 cc	SOF	No	8 U FFP 4 U RBC
5•	32	G0P0	11	5.5	>5	3000 cc	SOF	No	8 U FFP 6 U RBC
6◆□	24	G1P0	46	6	3.6	3500 cc	SOF	No	4 U FFP 4 U RBC
7*•	36	G1P1	36	6.5	>5	1900 cc	Suturing	No	4 U FFP 2 U RBC
8*•	39	G3P3	892	6.8	4.9	2400 cc	Suturing	No	5 U FFP 4 U RBC
9	32	G0P0	23	5.7	4.8	2300 cc	Suturing	No	6 U FFP 4 U RBC
10*□•	40	G4P3	144	7.5	3.9	1800 cc	SOF	No	4 U FFP 3 U RBC

*Patients receiving concomitant 80mg/day aspirin therapy; ◆Patients had a history of previous surgery for ruptured corpus luteum, □ Patients with regular cardiology visit; • Patients had a ruptured corpus luteum on the right side.
DPMA - depot medroxy progesterone acetate, FFR - fresh frozen plasma, G - gravida, OAC - oral anticoagulant, OC - oral contraceptive pill, P - parita, RBC - red blood cell, SOF - salpingooopherectomy

Treatment of ovarian hemorrhage can be conservative or surgical. Initial treatment is to control the bleeding medically. Surgical treatment is offered in case of deterioration of the vital status despite sustained medical therapy (4).

Keeping the anticoagulant intensity within the optimal therapeutic range and ovulation suppression are main targets for follow-up management. Patients should be advised to remain loyal to their cardiology visit for former. In our report, eight of ten women whose INR values were at out of optimal anticoagulation intensity did not visit their cardiologist over one year.

Low dose oral contraceptive pill (OC), progesterone-only agents, gonadotropin-releasing hormone analogs are different options for ovulation suppression (4, 5). There has been a discrepancy about relation between OC treatment and thrombotic risk (2, 4, 5). DMPA- including only injectable progesterone- is an effective contraceptive agent, neither increases hepatic production of coagulation factors and blood pressure, nor causes any significant changes in most of the coagulation parameters (4). Therefore, DMPA has been recommended in patients having contraindications in use of OC (4, 5). However, some studies concluded that long-term use of DMPA was associated with impaired endothelial function and lipid profile (4).

DMPA seems to be quite safer than OCs for women under life-long anticoagulant therapy. Further prospective randomized studies are needed to evaluate the safety and efficacy of DMPA and OC in preventing hemorrhagic corpus luteum.

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The effects of flight on the electrocardiogram

Uçuşun elektrokardiyogram üzerindeki etkileri

In military aviation, jet pilots are exposed to flight stress than helicopter pilot. The respiratory rate and heart rate are susceptible to increases in changes in the atmospheric pressure and the G force in the jet pilots. The helicopter pilots are not exposed to the G force because they fly below 15.000 feet; but, unlike jet pilots, they are subjected to extreme vibration. Even though supplemental oxygen is not needed and the cabin pressure is not regulated, helicopter pilots still have to deal with the effect of high altitude (1).

We aimed to assess the effect of high altitude, low atmospheric pressure, acceleration, duration of flight and differences of flight conditions on the electrocardiograms (ECG) of jet and helicopter pilots. We included 71 jet and 167 helicopter pilots who presented to the Merzifon military hospital for annual check-up. The control group was composed of 93 individuals who were not pilots and were from the same geographic region. All of the subjects were healthy males with no cardiovascular problems. Even though it is known that hypoxia has effects on the ECG, there are no studies that evaluated the ECG parameters in the jet and helicopter pilots

The ECG findings of the subjects are shown in Table 1. The basal heart rate was the lowest in jet pilots; the helicopter pilots had the second lowest levels. The PR interval was significantly longer in the jet pilots than the control group. The QT duration was significantly longer in the control group than the pilots group. On the other hand, the QRS duration was longer in the pilots group. Even though the QRS axis was greater in both pilots group, it was significantly different in the helicopter pilots of the control group. The amplitude of the P-wave was the highest in the helicopter pilot group and it was significantly different from the control group. The helicopter and the jet pilots groups had significantly shorter Pmax and Pmin durations compared to the control group. However, there was no significant difference in the P wave and QRS dispersions among the groups and no correlation was found between the flight durations and ECG findings.

First-degree atrioventricular block can be detected in healthy pilots and it is related to the increased resting vagal tone. Resting heart rate was lower in the jet and helicopter pilots as a result of the regular physical activity. QRS durations and PR intervals were longer in the jet and helicopter pilots. We concluded that this could be a result of lengthening of the atrioventricular conduction duration and ventricular depolarization by means of an increased resting vagal tone.

The echocardiographic parameters of pilots were normal in our study. The most important limitation of our study is manual calculation of P-wave and QT measurements by using a magnifying lens instead of a computer-assisted P-wave calculation.

Increased P wave dispersion predicts the development of atrial fibrillation in patients with various heart diseases (2-4). The QT dispersion reflects the physiological variability of regional ventricular repolarization. Increased QT dispersion was related to heterogeneity of regional ventricular repolarization and is accepted as a marker for arrhythmia and sudden death (5).

There are no significant changes in the P wave and QT dispersions in the jet and helicopter pilots. Therefore, the risk of atrial and ventricular arrhythmias is expected to be similar to the normal population. These ECG changes can potentially be attributed to the regular physical activity and the effects of long-term flight exposure.