Objective: To determine the rate of post–face-lift hematoma among users of serotonin reuptake inhibitors (SSRIs) vs non-SSRI users. Selective serotonin reuptake inhibitors have come under recent scrutiny because of possible bleeding risks. However, cessation of SSRIs carries inherent risks.

Methods: The medical charts for 250 consecutive patients who underwent a modified deep-plane face-lift and 13 patients who underwent neck-lift from January 2010 to May 2011 were reviewed for the incidence of postoperative hematoma. Patients’ medical records were examined for medical comorbidities, coagulopathy, and medication list, with particular attention to any usage of SSRIs or serotonin norepinephrine reuptake inhibitors (SNRIs).

Results: Twenty-two percent of patients were taking SSRIs or SNRIs. We observed a total hematoma (major + minor) rate of 1.95% for non–SSRI/SNRI users vs 1.72% for SSRI/SNRI users. The minor hematoma rate was 1.95% among nonusers vs 0% for users. The major hematoma rate was 0% among nonusers vs 1.72% for users.

Conclusions: Usage of SSRIs was more common in this large series of face-lift patients than in the general population. In these patients, SSRIs in the perioperative period are found to be safe and did not seem to adversely affect outcome. We found no evidence to support discontinuing SSRIs perioperatively.


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blood loss among patients taking SSRIs who underwent hip arthroplasty; however, there was no increase in perioperative transfusion requirements.

Cessation of SSRI therapy is not without its risks. The World Health Organization has identified depression as the fourth leading cause of total disease burden and the leading cause of disability worldwide.32 Many patients experience physical, psychological, and somatic complaints shortly after the discontinuation of antidepressants.35–36 Stopping treatment can lead to depression during a time when patients require a high level of motivation and activity required for dressing, wound care, and visits to the surgeon for preoperative and postoperative care. Cessation of SSRIs can also lead to anxiety, which can be detrimental during the perioperative period. There is a need to understand how significant the risk of bleeding is in order to weigh its risk against that of cessation of SSRIs.

We performed this study to determine the rate of postface-lift hematomas in patients taking SSRIs vs those who do not. To our knowledge, this is the first study of its kind in patients undergoing facial plastic surgery.

METHODS

We performed an institutional review board–approved retrospective review of all patients having undergone a complete, platysma muscle suspension, deep-plane face-lift by the senior surgeon (D.B.R.) from January 1, 2010, to May 1, 2011. The technique used is a modification of a deep-plane rhytidectomy, in which the platysma muscle is isolated and identified within the face and neck. To isolate the facial component of the platysma, a No. 10 blade scalpel is used to dissect the superficial musculoaponeurotic system (SMAS) laterally from the mandible. Dissection deep to the platysma muscle occurs approximately 1 cm posterior to the nasolabial fold along the face and 8 cm below the mandible. Midline platysmaplasty with subplatysmal dissection is also performed. All but 13 patients underwent the complete, platysma muscle suspension, deep-plane face-lift (either primary or revision) as described. Thirteen patients underwent subplatysmalplasty alone and were included in the study.

There were no exclusion criteria for the study. Patients’ medical records were examined for their age, medical comorbidities, medication list, surgical history, and postoperative course. Medication lists were examined in particular for the usage of any NSAID, aspirin, warfarin, clopidogrel, or antidepressants. Antidepressants were categorized as SSRIs, serotonin norepinephrine reuptake inhibitors (SNRIs), and “other” class of antidepressant agents. SSRIs included fluoxetine hydrochloride, citalopram hydrobromide, fluvoxamine maleate, paroxetine hydrochloride, sertraline hydrochloride, fluvoxamine maleate, escitalopram oxalate, and clomipramine hydrochloride. SNRIs such as venlafaxine hydrochloride, desvenlafaxine succinate, and duloxetine hydrochloride were also included in the study due to their mechanism of serotonin reuptake inhibition. The “other” class of agents, including trazodone hydrochloride and bupropion hydrochloride, was excluded from analysis of bleeding risk owing to lack of clinically significant serotonin reuptake inhibition.

All patients were instructed to discontinue the use of aspirin and NSAIDs 2 weeks prior to surgery. All patients were also instructed to discontinue supplements associated with bleeding, such as vitamin E, fish oil, omega, glucosamine, flax seed, herbal medications, and green tea 2 weeks prior to surgery. Aspirin, NSAIDs, and supplements were restricted until 2 weeks postoperatively. No patients were taking warfarin or clopidogrel. Patients were also advised to take Arnica montana tablets daily for 5 days before surgery to minimize ecchymosis. Smoking cessation was advised. No tissue sealant or vacuum drains were used. Pressure dressings were placed, which were removed the subsequent morning. Perioperative blood pressure parameters were instituted with a goal systolic blood pressure lower than 140 mm Hg and diastolic blood pressure lower than 90 mm Hg, and antihypertensive medications were administered by the anesthesiologists if necessary. All patients also were given 3 intraoperative prophylactic antielectives: dexamethasone, metoclopamide hydrochloride, and ondansetron hydrochloride. Patients received general anesthesia, and deep extubation was performed to minimize coughing or bucking.

Patient medical records were examined for any bleeding complications and intervention. Patients were evaluated on postoperative days 1, 5, and 8. Major hematomas were defined as expandisole collections that required urgent surgical evacuation. Minor hematomas contained 10 mL or less of blood and were treated by needle aspiration in the office.

RESULTS

A total of 263 consecutive patients were included in the study, with a mean age of 61 years (range, 44–80 years). There were 5 male and 258 female patients. A total of 181 patients underwent primary deep-plane rhytidectomy and subplatysmaplasty; 69 patients underwent revision rhytidectomies; and 13 patients underwent subplatysmaplasty alone.

Group 1 comprised 205 patients (78%) not taking SSRIs/SNRIs. Group 2 comprised 58 patients (22%) who were taking SSRIs or SNRIs. SSRIs constituted most of these antidepressants (67%). While several patients were taking an SSRI or SNRI in conjunction with another class of antidepressants (ie, trazodone or buproprion), only 1 patient was taking both an SSRI and an SNRI. Two patients had mild von Willebrand disease and were given desmopressin acetate preoperatively. No other coagulopathies were present.

MAJOR HEMATOMAS

One major bleeding complication occurred in a 62-year-old woman who underwent revision rhytidectomy. The patient had no history of coagulopathy and was not taking any known NSAIDs or aspirin. The hematoma manifested within the first 12 postoperative hours, requiring surgical evacuation. This patient was also taking a low-dose SSRI. This was the only hematoma in group 2. Thus, group 2 had a resulting hematoma rate of 1.72% (1 in 58) (Table 1). Group 1 did not have any major hematomas. Therefore, the major hematoma rate in group 1 was 0% compared with 1.72% in group 2, with an overall hematoma rate of 0.38% (1 in 263).

MINOR HEMATOMAS

In group 1, 4 patients (a rate of 1.95%) experienced a minor hematoma treated successfully by needle aspiration (Table 2). Minor hematomas manifested on postoperative days 2 to 14. One of these patients had mild von Willebrand disease. There were no minor hematoma-
other study of 12 healthy young men, there was no difference. In the study by Hergovich et al, platelet function was assessed in relation to tricyclic antidepressant use. However, platelet function was not significantly different between the tricyclic antidepressant users and the control group.

Controversy still exists as to whether there are bleeding risks associated with SSRIs. While there are observational studies and case reports of hemorrhagic risks associated with SSRIs, clinical trials and level 1 evidence are lacking. SSRIs are believed to impair platelet aggregation, inhibiting calcium mobilization, and reducing platelet secretion. Because serotonin is not synthesized in platelets, this receptor downregulation blocks serotonin receptors on blood platelets. Because serotonin is not synthesized in platelets, this receptor downregulation blocks serotonin receptors on blood platelets. Serotonin released from platelets at the site of vascular injury facilitates platelet aggregation and hemostatic thrombus formation. In the study by Hergovich et al, platelet serotonin concentration decreased by 83% after 14 days of paroxetine use. SSRIs are also believed to have broad antiplatelet effects by decreasing platelet binding affinity, inhibiting calcium mobilization, and reducing platelet secretion in response to collagen.

While SSRIs may decrease platelet serotonin, the causal relationship between SSRIs and clinically significant bleeding is unclear. In the study by Hougardy et al, only 6 of 43 paroxetine users had abnormal platelet function, which could not be definitively attributed to SSRI usage. In another study of 12 healthy young men, there was no difference in platelet activity and serotonin uptake between sertraline and placebo. The concern over hemorrhagic complications began with several case reports noting epistaxis, purpura, ecchymosis, retropertioneal hematoma, and GI tract bleeding while using SSRIs. Several observational studies have since reported an increased risk of GI tract bleeding due to SSRIs, with an increased relative risk ranging from 1.24 to 3.60. This effect was found to be potentiated by concurrent use of NSAIDs or low-dose aspirin, with an increased relative bleeding risk of 5.2 to 12.2. Critics of these studies assert that they do not demonstrate direct causality. In addition, these retrospective case-control and cohort studies are derived from computerized databases that are possibly lacking in clinical detail and may not control for other risk factors for GI tract bleeding. Other studies have demonstrated no significant increase in GI tract bleeding with SSRIs. SSRIs have also been found to confer no increased risk of hemorrhagic stroke.

Data on postoperative bleeding effects are limited and mixed. A retrospective study of patients having undergone CABG found no increased risk of rates of reoperation for bleeding or rates of red blood cell (RBC) transfusion among SSRI users. However, among those receiving transfusions, the median volume of RBC units transfused was higher in the SSRI group (5 U vs 4 U). In contrast, 2 other studies found no increased RBC transfusion requirement among SSRI users undergoing CABG. Kim et al also noted no difference in any bleeding events, 30-day mortality, or reoperations for bleeding. While SSRI users were 2.3 times more likely to need reoperation for bleeding after mastectomy in one study, they had no increased frequency of oral bleeding complications after invasive dental procedures.

None of these latter studies discontinued SSRI use in the perioperative period. Cessation of SSRIs has been associated with clinically significant risk. Numerous studies have described withdrawal symptoms in patients after discontinuation of SSRIs, including psychological, physical, and somatic complaints. A diverse set of symptoms has been reported, most commonly dizziness, vertigo, nausea, vomiting, fatigue, and malaise. Patients have also experienced gastrointestinal symptoms, agitation, insomnia, tremors, nightmares, headaches, irritability, anxiety, and paresthesias. More serious symptoms have included relapses in significant depression, aggression, hypomania, and suicide. A study by Valuck et al noted a 61% increased risk of suicide attempt in the 2 weeks following discontinuation of antidepressants. Discontinuation symptoms have been reported in 12% to 50% of antidepressant users, can begin within 3 to 5 days of treatment cessation, and have been reported to last up to 3 weeks. Symptoms improve once medications are restarted.

To our knowledge, this is the first study evaluating the effects of SSRIs on postoperative bleeding in the facial plastics literature. Among our 263 patients who underwent rhytidectomy, 58 (22%) were using SSRIs or SNRIs. One major bleeding complication occurred, requiring surgical intervention, resulting in a total hematoma rate of 0.38%. Since this patient was using an SSRI, this yielded a hematoma rate among group 2 vs 0% for group 1. The minor hematoma rate in group 1 was 1.95% compared with 0% in group 2. Over-all, the total hematoma (major + minor) rate was 1.95% in group 1 and 1.72% in group 2. Differences in hematoma rates between both groups were statistically insignificant using unpaired t test (P = .87).

### Table 1. Incidence of Postrhytidectomy Hematoma

<table>
<thead>
<tr>
<th>Complication</th>
<th>All Patients (n=263)</th>
<th>Group 1 (n=205)</th>
<th>Group 2 (n=58)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major hematoma</td>
<td>1 (0.38)</td>
<td>0</td>
<td>1 (1.72)</td>
</tr>
<tr>
<td>Minor hematoma</td>
<td>4 (1.52)</td>
<td>4 (1.95)</td>
<td>0</td>
</tr>
<tr>
<td>All hematomas (minor + major)</td>
<td>5 (1.90)</td>
<td>4 (1.95)</td>
<td>1 (1.72)</td>
</tr>
</tbody>
</table>

Group 1 did not use serotonin norepinephrine reuptake inhibitors (SNRIs) or selective serotonin reuptake inhibitors (SSRIs); group 2 used SNRIs and SSRIs.

### Table 2. Cases of Minor Hematoma in Group 1

<table>
<thead>
<tr>
<th>Patient No./Sex/Age, y</th>
<th>Known Risk Factors</th>
<th>Postoperative Day of Minor Hematoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/F/60</td>
<td>NA</td>
<td>5</td>
</tr>
<tr>
<td>2/F/58</td>
<td>Von Willebrand disease</td>
<td>9, 11</td>
</tr>
<tr>
<td>3/F/43</td>
<td>NA</td>
<td>11, 14</td>
</tr>
<tr>
<td>4/F/60</td>
<td>NA</td>
<td>2, 6, 10, 13</td>
</tr>
</tbody>
</table>

Abbreviation: NA, not available.

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nor hematoma rate was 1.95% among group 1 vs 0% for group 2. Total hematoma rate (major + minor) was 1.95% for group 1 vs 1.72% for group 2.

This study is limited by its low power, and we cannot establish a causal relationship between SSRI use and postoperative bleeding. While this study cannot definitely rule out a small increased risk of postoperative bleeding with the usage of SSRIs, we can conclude that the rate of hematoma among SSRI users is small and comparable with published rates of major hematoma. In addition, the rates of total hematoma between non–SSRI users and SSRI users are comparable. This is in the context of what is considered to be extensive dissection by the senior author (D.B.R.) both above and below the platysma and SMAS. This is also the first study that reports the prevalence of SSRI use in face-lift surgery. A rate of 22% is significant and reflects the prevalence of depression and anxiety in this group of patients. Given the risk of cessation of SSRIs, the low hematoma rate among users and the lack of level 1 evidence supporting bleeding, our study does not find good reason to stop SSRIs in the perioperative period.

In conclusion, SSRI use is common among face-lift patients. Data on increased bleeding risks with SSRIs are limited and mixed. Given our major hematoma rate of 1.72% and minor hematoma rate of 0% among SSRI users, SSRIs in the perioperative period did not seem to adversely affect bleeding.

Accepted for Publication: December 30, 2011.
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Author Contributions: All authors had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Rosenberg. Acquisition of data: Harirchian. Analysis and interpretation of data: Harirchian, Zoumalan, and Rosenberg. Drafting of the manuscript: Harirchian. Critical revision of the manuscript for important intellectual content: Zoumalan and Rosenberg. Statistical analysis: Harirchian and Rosenberg. Administrative, technical, and material support: Rosenberg. Study supervision: Zoumalan and Rosenberg.

Financial Disclosure: None reported.

REFERENCES


