

## **Patients**

A total of 78 healthy female patients undergoing facial fat grafting from January of 2010 to January of 2014 were included in the present study (Table 1). The average patient age was 35.1 years (range 18 to 53 years). The study was approved by the Institutional Review Board. Each patient was fully informed regarding the procedure and the aim of the study, including the possible need of repetitive fat grafting sessions. Contraindications included chemotherapy, radiotherapy, chronic use of steroids, connective tissue diseases, chronic blood abnormalities, and other systemic metabolic disorders, including diabetes, a history of obesity or body dysmorphic disorder, and anticoagulant treatment.

## **Surgical technique**

Fat was collected by liposuction performed on the abdomen or thigh regions using the superwet technique. The tumescent solution containing 0.08% lidocaine and 1:500,000 of epinephrine are infiltrated into the donor site. A 2.5 mm suction cannula with 2 holes in the tip is connected with a 20 ml syringe for fat graft harvesting. An appropriate amount of fat is gently aspirated with finger pressure on the plunger of the syringe without using a suction machine in order to minimize trauma to the fat grafts. The fat grafts are then washed with normal saline inside the syringe in sterilized condition to remove lidocaine, oil, and residual red blood cells and are then spun at low speed (1000 rpm, g force < 100 g) for 2 min. After centrifugation, the middle layer primarily consisting of usable fat parcels is used for fat injection. The entire procedure is done within 30 min and the temperature is controlled at 25 C throughout the procedure.

Fat grafting was performed under local anesthesia at the oral commissure combined with infraorbital nerve block. Fat grafts are injected into multiple tissue areas with a 1 ml syringe connecting with a blunt needle whose external diameter is 2 or 3 mm.