Citation: Lee KR (2013) Clinical Efficacy of Fat Reduction on the Thigh of Korean Women through Cryolipolysis. J Obes Weight Loss Ther 3: 203. doi:10.4172/2165-7904.1000203

temperatures well above the freezing point of tissue water. The potential for tissue-specific cold injury was first investigated and recently reported by Manstein Dieter et al. in an animal model. Black Yucatan pigs were exposed to temperatures of 20, -1, -3, -5, and -7°C for 10 minutes using the Zeltiq prototype device (Zeltiq Aesthetics, Pleasanton, CA) [12]. At 3.5 months of follow-up, some treated areas showed grossly obvious loss of several millimeters of subcutaneous fat.

The theoretical background of non-invasive cryolipolysis was to reduce fat layer through apoptotic fat cell death. Apoptosis of fat cell was triggered by maintain energy extraction rate against fat sparing dermis. A cooling intensity factor was expressed as the rate of energy extraction (mW/cm^2) from tissue over a period of time.

Assessed by neurologic evaluation, the transient reduction in sensation occurred in six out of nine subjects. However, all sensation returned by a mean of 3.6 weeks after treatment. Biopsies showed no long-term change in nerve fiber structure. There were no lasting sensory alterations or observations of skin damage in any of the subjects evaluated. Non-invasive cryolipolysis resulted in substantial fat reduction within 2 months of treatment without damage to skin. The procedure was associated with modest reversible short-term changes [13] in the function of peripheral sensory nerves.

While most of clinical trial usage by Zeltiq machine (Pleasanton, CA, USA) in United States was to remove fat around abdomen or back fat, no clinical trial to reduce fat on thighs would be performed until now. We would like to know clinical efficacy, safety of cryolipolysis to reduce fat on the thigh by comparing to radio frequency method after just one session.

The endpoint of present study was to assess the 4-week and 12-week difference of femoral amount measured by computerizing tomography between cryolipolysis and radio frequency method on each thigh.

Therefore, we would like to compare the effect of cryolipolysis (as intervention procedure) and the radio frequency method (as sham operation) by measuring the difference of local fat cross sectional areas and circumferences of thighs of healthy Korean women, who used either one of the two products, for 12 weeks.

Method

The protocol in the present study was reviewed and approved by the human ethnics committee of Hong Ik General Hospital. The procedure of the study was understood and the informed consents were signed by consented participants. The design of the present study was case-controlled, prospective, clinical trial. Twenty eight healthy premenopausal hotchaosbwaaha circces4(k)]TJ2(tp,2(we)-5(d p)-t)-5(ici)1fed b9i12(a)9(T-t)-56aos1.5197 316lTw T(n)455(p)-aos1.5197 316lTw T(n)45
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and 12th week visit. Histological examination for skin was carried out at initial and 12th week; questionnaires [14] for satisfaction were obtained at 12th week, and adverse events were monitored at each visit.

Statistical analysis

e Wilcoxon signed-rank test was applied to evaluate the di erence of anthropometrical, cardio-metabolic variables, and circumferences, and cross-sectional areas of both thighs at initial, 4th week, and 12th week visit. Pearson correlation analysis was done to assess the socio-demographical, anthropometrical, metabolic variables with di erence of fat amount in thigh. SPSS packages for window version 15 (Chicago, Illinois, USA) was performed, and a probability value of less than 0.05 was considered as statistically signi cant at both sides.

Results

Four subjects were eliminated for disagreeing with the protocol and menstrual irregularities at the initial interview. Nine subjects were further excluded as those with abnormal laboratory nding; een nal subjects were selected as healthy normal subjects. A total of fourteen subjects were analyzed because one subject violated the protocol at 4th week. Data was expressed as mean ± standard deviation.

Initial baseline demographic characteristics

Mean age was 28.57 ± 7.81 year; mean body mass index was 23.12 ± 3.17 Kg/m². e average percentage of body fat was 31.93 ± 4.80 %. All

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	BMI(Kg/m		
Circumference of Left thigh(inches)	22.26 ± 1.82	22.30 ± 1.99	n

. (Figures 1 and 2) No in ammatory change was noted in three cases of the subjects.

Discussion

We did not show any di erence in a measured fat amount of thigh in comparing by using between Zeltiq machine and radio frequency method. ere was no statistical signi cant di erence between data in a measured fat amount on both thighs at initial and 4th week. Paradoxically, there were increases in the fat amount in both thighs regardless of procedure at 4th week. Unexpectedly, the increase amount of fat in le thigh was higher than that of right. It was noted that all subjects gained weight as the measured fat amount increased in both thighs for 4 weeks. It is suggested that the weight gain could be partly due to localized water retention and hormonal changes related with menstruation. e reason for higher in le (3.1%) compared to right thigh (0.2%) might be the in ammation process observed within 4 weeks. It inferred that there was in ammation process in le thigh (target site) induced by Zeltiq machine. According to the recently published data, the histological change started as caspase-3 appeared

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