**Efficacy of short-term antibiotic prophylaxis in immediate two-stage breast reconstruction after mastectomy: a single-centre cohort study**

Andrea Vittorio Emanuele Lisa, Valeriano Vinci, Luca Maione, Federica Tordato, Daria Pocaterra, Paola Morelli*, Francesco Klinger, Fabio Caviggioli, Marco Klinger

1 Istituto Clinico Humanitas, Rozzano, Italy, 2 MultiMedica, Sesto San Giovanni, Italy

**Background:** Immediate two-stage breast reconstruction (ITSBR) after mastectomy is the most common technique used worldwide for breast reconstruction. Infection is the most frequent complication with a rate of between 2.5 and 24%. Guidelines of 2006 recommend discontinuation of prophylactic antibiotics within 24 hours of surgery. Reconstructive surgeons have been hesitant to implement these recommendations in the setting of ITSBR with prosthetic devices and closed-suction drainage because of the concerns for infectious complications. For this reason there is no unanimous opinion on how long the post-operative antibiotics prophylaxis should last.

**Materials/methods:** We performed a cohort study at Humanitas Research Hospital from September 2017 to June 2018 comparing two protocols of antibiotic prophylaxis for the prevention of the infection in women who undergone ITSBR with tissue expander and no prior chemotherapy or radiotherapy treatments. We compared two groups of women: the first group (long-term prophylaxis), made of 391 patients (a total of 417 expanders), was administered with prophylactic antibiotics before the surgery and continued until the removal of the drains. The second group (short-term prophylaxis), made of 89 patients (a total of 95 expanders), was administered with prophylactic antibiotics just before surgery and the drains were removed within 21 days. Primary outcomes were surgical site infection (SSI) and implant loss (IL).

**Results:** The incidence of SSI was 10.79% (95%CI 1.38-20.2%) with long-term prophylaxis and 10.52% (95%CI 0.39-30.03%) with short-term prophylaxis and 11.51% overall, which was not statistically significant.

The incidence of IL was 5.74% (95%CI 3.50-7.98%) with long-term prophylaxis and 2.11% (95%CI 0.78-5.00%) with short-term prophylaxis which was not statistically significant. The IL/SSI ratio was 46.67% in the first cohort and 20% in the second cohort, p<0.05. The average time for keeping the drains was 19 days in the first cohort (5-72 days and 15 days the second cohort (7-20 days).

**Conclusions:** Short-term antibiotic prophylaxis seems not to be related with an implementation of IL Moreover SSI and IL seem to be not only related to antibiotic prophylaxis but also the length of drainage keeping.