Electronic witness system in IVF - patient's perspective

Biological sample mix up is a very rare event in IVF procedure, but it can happen. In order to almost eliminate the risk of error during the handling of biological samples and make safer the IVF treatments, some laboratories have introduced the electronic witness system (EWS). We performed a prospective study on 408 patients attending an IVF cycle in a single private center equipped with IVF witness (RI) between January 2013 and December 2014. The aim was to evaluate whether infertile patients are troubled with the possibility of an embryologist's mistake in the manipulation of their biological materials and whether a new technological solution, EWS could reduce the patient's worries about mismatch errors.

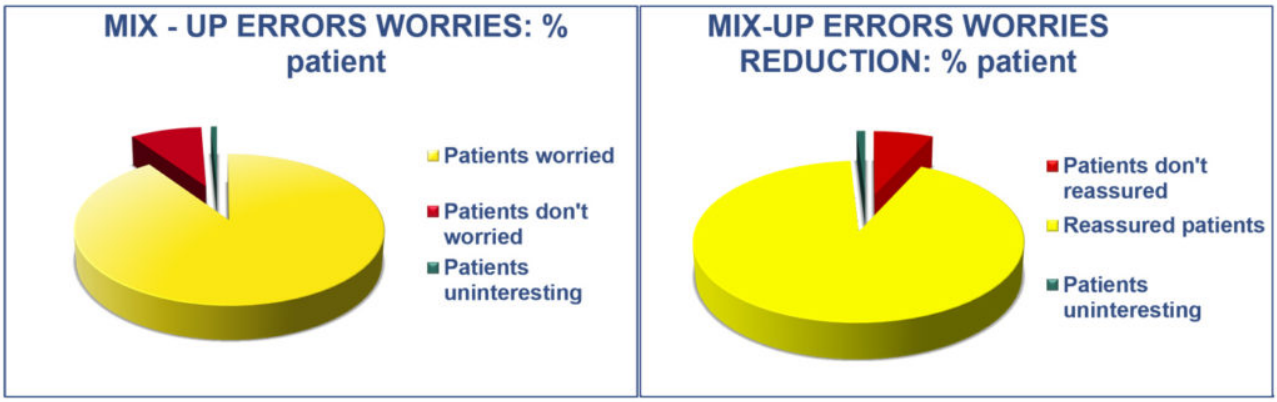

Fig. 1. Mix-up errors worries; Mix-up errors worries reduction.

To answer to these questions, at the embryo transfer patients were provided a questionnaire developed in 7 items to assess patient's worries about IVF errors and EWS satisfaction through a Likert scale ranging from 1 to 6. Information about socio-demographic variables including age, gender, education, and previous IVF treatments were collected. Data recorded before (204 patients), and after (204 patients) a thundering embryo mix-up event in an Italian Hospital, during the course of the study, were also compared, to assess whether this noteworthy event could influence the patient's perspective on mix-up errors and their liking respect to EWS . Finally, the distribution of scores rated by patients, was observed and evaluate in a narrow time window around the mix-up event. The results have shown that most of the patients (90,4%, 369/408, 95 % CI= 87.2-93.1) expressed significant concerns relating to sample mix-up. The use of an EWS in our Clinic reduced concerns about mismatches errors in 92,1%, (376/408, 95% CI= 89.1-94.6) of patients. 97,1% (396/408, 95% CI= 94.9-98.5) of which were particularly satisfied with the electronic traceability of their gametes and embryos in the IVF laboratory. 97.1% (398/408, 95% CI= 95.5-98.8) of patients felt highly comfortable with an IVF center equipped with an EWS. It has been observed that female patients had a significantly higher liking of the EWS when compared to their male partners (p=0.029). An important mix-up event occurred in an Italian hospital during the

study and patient's satisfaction increased significantly towards the use of the EWS after the event (P=0.032). At the time of the critical event, we observed a significant increase in the number of patients showing extreme concerns about the possibility of a human error in the procedures, as well as in patients showing extreme satisfaction toward an IVF clinic using EWS, compared to those patients receiving the interview in the immediate pre and post event period.

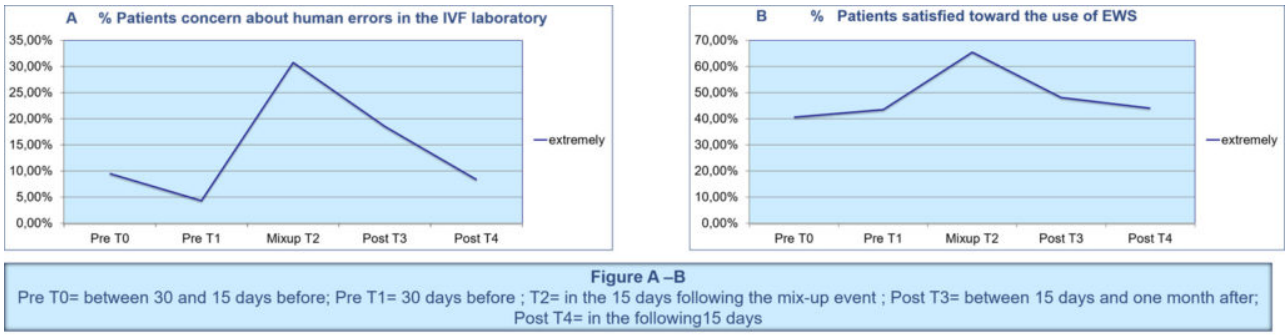

Fig. 2. Figure A: % Patients concern about human errors in the IVF laboratory
Figure B: % Patients satisfied toward the use of EWS

Our study has shown that an EWS is an effective instrument in a IVF clinic. Its efficacy is not only about the safeguard of all step of IVF procedures, and reducing errors risk, but it also has an important function in IVF patient's point of view. From a psychological perspective an EWS is able to increase patient wellbeing during IVF treatments and it can reduce an additional source of stress that could burden a patient's emotional balance. The limit of the sturdy is that even if animal studies showed reassuring data, it still need to be fully determined whether the systematic use of such electronic devices in the IVF laboratory might interfere with the biology of gametes and embryos. To conclude an improvement of the cost-effectiveness of the EWS devices could allow more clinics and patients to benefit from its routine application in IVF.

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