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**Study question:** Evaluate the impact of restrictive measures, implemented to contain the spread SARS-CoV-2, on ART activity in Italy during 2020.

**Summary answer:** Due to periods of suspension of certain medical procedures in 2020, ART activity has undergone a substantial reduction.

**What is known already:** Since the end of February 2020, the spread of SARS-CoV-2 has taken a dramatic toll, especially in Northern Italy. In order to ensure that the majority of National Health System resources were employed to control the epidemic, non-urgent medical procedures such as ART treatments, were suspended or postponed by a Government Decree issued on March 9, 2020. Only fertility preservation in cancer patients continued as these procedures could not be deferred. The first suspension of activity lasted about two months. Then, throughout 2020 many ART centers were forced to suspend their activity again because of flares in SARS-CoV-2 infection rates.

**Study design, size, duration:** The Italian Assisted Reproductive Technology Register (IARTR) retrospectively analyzed ART cycles applied in Italy in 2020 (67,928 ART cycles performed on 57,423 patients). The 2020 ART cycles were compared to those applied in 2019 (82,476 ART cycles performed on 67,633 patients). Data collection was organized yearly in two different time frames: the first regards the activity conducted during the year until pregnancy and the second regards pregnancy outcomes.

**Participants/materials, setting, methods:** A total of 205 ART clinics have sent data to the IARTR in 2019 and/or 2020. Among those clinics 54.1% were private, 37.1% were public and 8.9% were private covered by NHS. Records were securely kept in the IARTR archive. The analysis has been performed utilizing SPSS 27.0

**Main results and the role of chance:** In 2020, the number of total ART cycles reported was 67,928 including 38,728 homologous fresh cycles (Fresh), 1,099 frozen/thawed oocytes (FO), 19,314 frozen embryo (FER) and 8,787 ART donation cycles. In 2019, 82,476 cycles were reported, including 50,324 Fresh, 1,361 FO, 21,796 FER and 8,995 gametes donation. In 2020, there have been 14,548 less ART cycles than in 2019, equivalent to a 17.6% of reduction in overall activity. However, the reduction was not homogeneous for all ART techniques, in particular there was a reduction of -23% in fresh cycles, of -11.4% in FER, of -19.3% in FO and of -2.3% for gametes donation. This overall reduction led to 3,325 fewer pregnancies. The reduction of treatment cycles observed in 2020 brings to 2,119 fewer deliveries (-18.0%) and to 2,539 fewer live born babies (-19.8%) compared to 2019. The percentage reduction of births is not homogeneous for the different ART techniques, ranging from -0.3% in donation cycles to -36.9% in fresh cycles. Lastly, during 2020 a reduction in multiple births (-2.1%) has been observed.

**Limitations, reasons for caution:** Since the national ART Register collect only summary data more deep analysis could not be performed. For some ART techniques the reduction may have been greater (i.e. donation cycles) if considering the growing trends of previous years.

**Wider implications of the findings:** Covid-19 pandemic has had a strong impact on Italian Health System. ART procedures suffered a reduction of availability. Since Italy has the lowest birth rate in Europe and ART plays an important role answering to the need of infertile couples, Government should support access to these treatments with dedicated actions.

**Trial registration number:** not applicable

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P-716 The impact of the SARS-CoV-2 pandemic on ART activity in Italy during 2020

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