

Introduction

Recent studies have confirmed a significant increase in the prevalence of neurodevelopmental disorders, especially ASD and ADHD (1). Both conditions are also very comorbid with important clinical situations in the care of paediatric neurological patients, such as epilepsy and limitations in cognitive abilities (2). For this reason, there is a high concern to identify the etiological factors behind this progressive increase in neurodevelopmental disorders (3).

Although the identification of genetic variants explains a good part of all these disorders, other epigenetic and environmental conditions have been invoked to expand the identification of the etiological spectrum, including the use of in assisted fertilization techniques (4).

Objectives

To analyze the neurodevelopmental outcome of a cohort of premature patients who have been conceived by assisted fertilization techniques (AFT) compared to premature infants conceived by spontaneous fertilization (SF).

Patients and Methods

We studied 151 premature births recorded in our NICU, between 1/1/2020-12/31/2022. At the time of the review, 87 out of the premature babies (53 boys and 35 girls) had reached two years of age, and both in-hospital and out-of-hospital follow-up records coming from our health area and two more assigned departments: La Marina Baixa and Denia, were available at that age. In 18 cases the conception was by AFT (Figure 1)(Figure 2).

Figure 1: Study Design

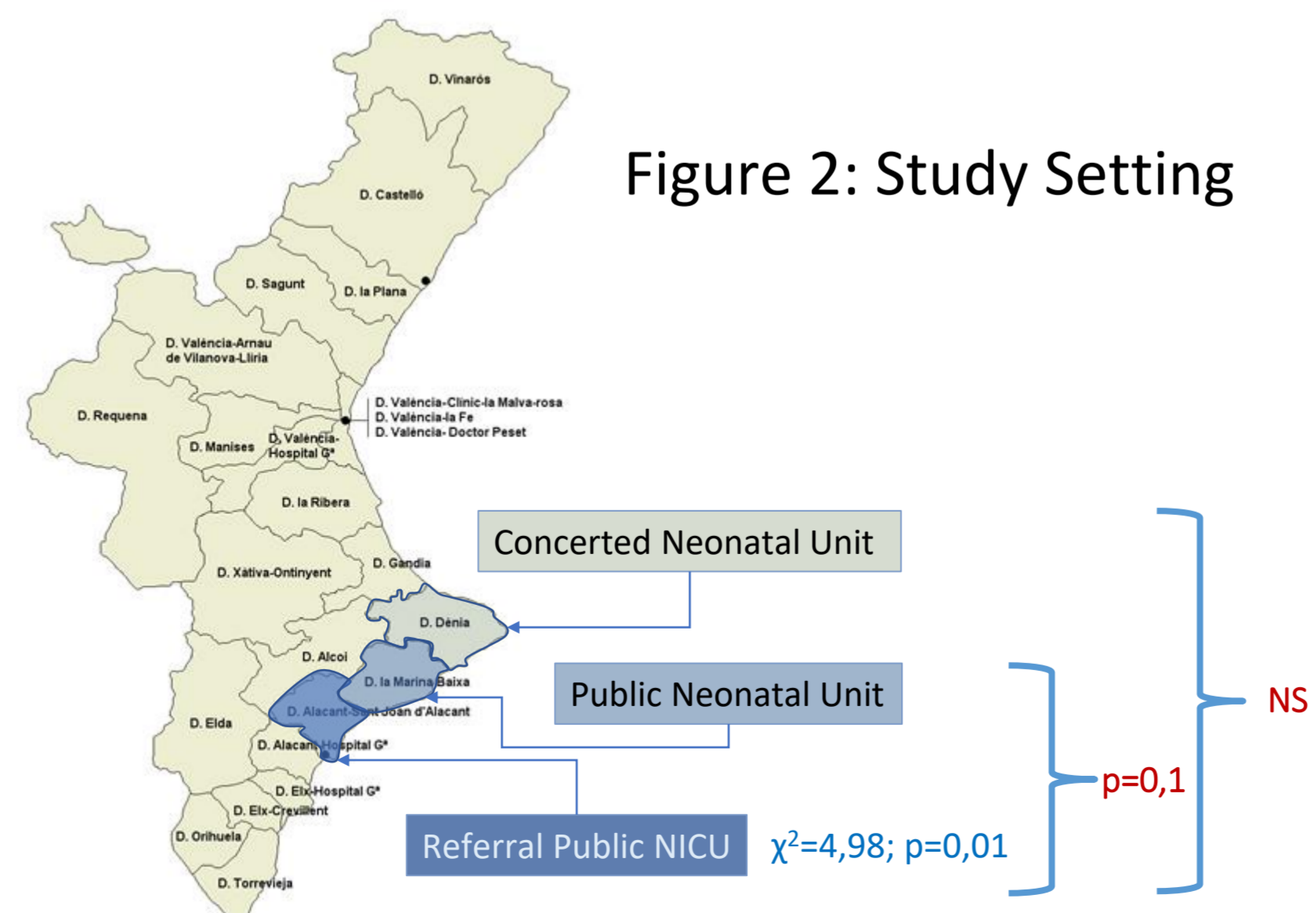
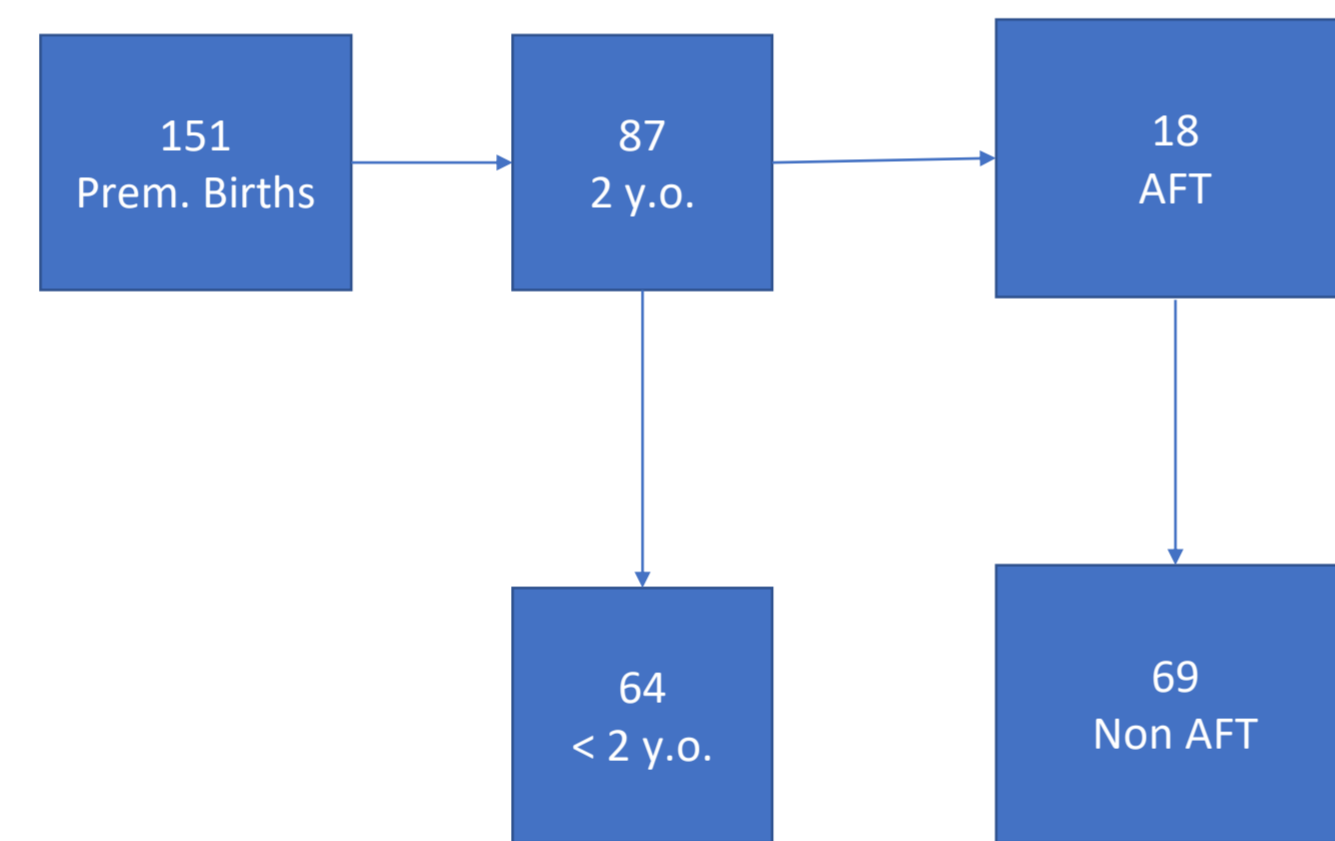


Figure 2: Study Setting

Results

No differences were found between groups in gestational age, birth weight, type of delivery or Apgar index. Maternal age was higher among patients conceived with AFT (37.6±4 vs 31.7±6.2) as well as twinning (36.2% vs 63.8%, p<0.001). The presence of neurodevelopmental alterations that required evaluation and follow-up did not present significant differences when the data from all reference health areas were accumulated (Figure 2,3). When the group from the reference area was analysed, AFT patients had eight times the risk (RR=8.17; CI (1.1-60.25)) of presenting neurological signs for follow-up or intervention (Figures 2,4).

Figure 3.- Presence of neurodevelopmental alterations that required evaluation and follow-up in all health areas. NS;

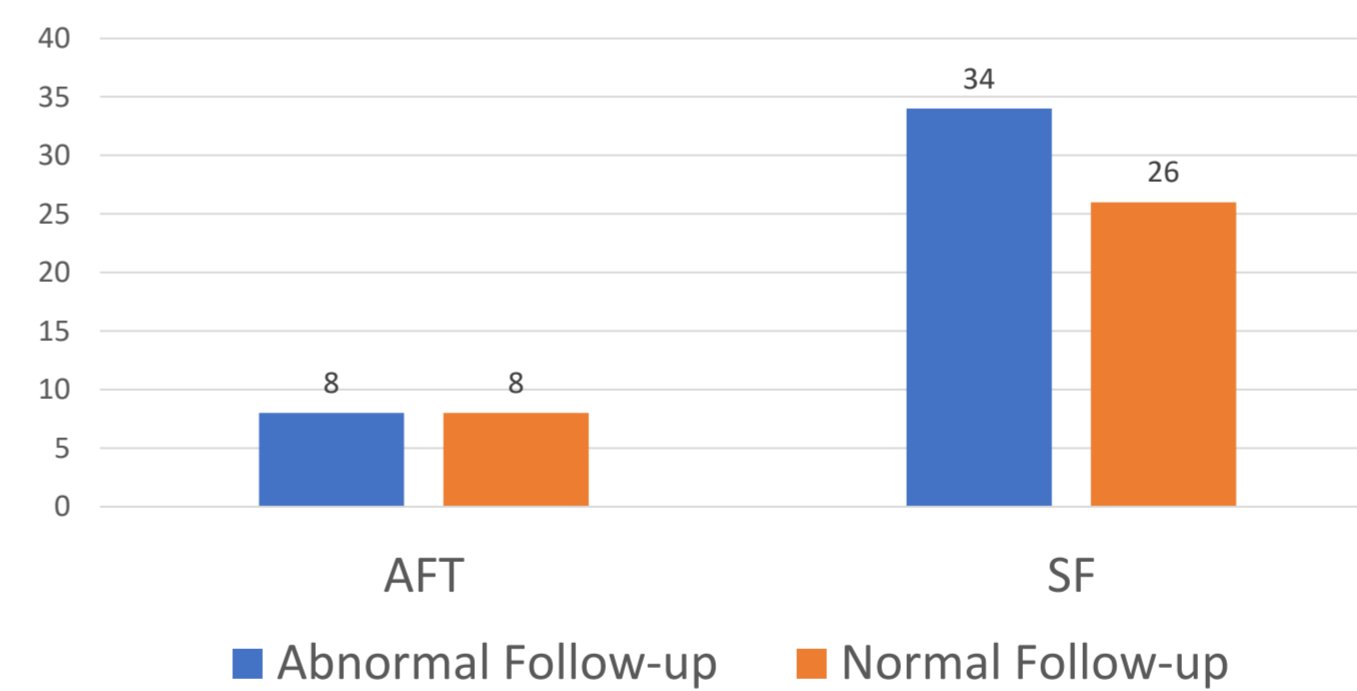
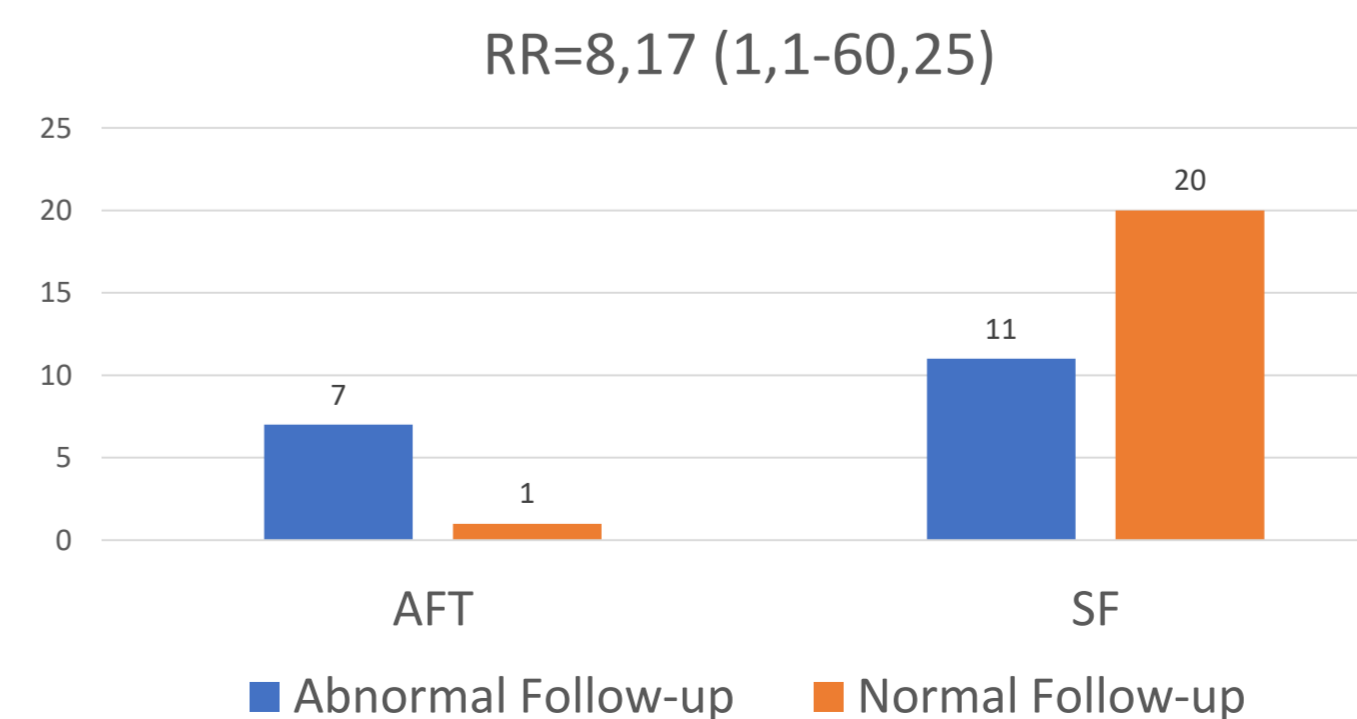


Figure 4.- Presence of neurodevelopmental alterations that required evaluation and follow-up in the referral area.



Conclusions

- 1) At the age of two, premature patients conceived by assisted fertilization have a greater risk of presenting neurodevelopmental alterations than those conceived naturally.
- 2) When the data analyzed corresponds to the reference center, the differences are more significant, especially if compared with those that come from private managed centers included in the public health network.
- 3) Ordinary confounding factors appear to play a minor role in influencing neurodevelopment.

References

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