P-209 - VARIATION IN THE IMMUNOREACTIVE TRYPSINOGEN CONCENTRATION DURING THE NEONATAL PERIOD IN A NEWBORN POPULATION OF BUENOS AIRES PROVINCE, ARGENTINA.

Borrajo GJC, Procopio D

Detección de Errores Congénitos. Fundación Bioquímica Argentina. La Plata - Argentina. borrajog@net-alliance.net.

INTRODUCTION: Cystic Fibrosis (CF) is an autosomal recessive disease with a significant morbidity and mortality. Newborn screening (NBS) offers the best opportunity for early intervention and improved results. NBS programs for CF have evolved rapidly and various algorithms have been implemented trying to increase their diagnostic accuracy, however all of them begin with the Immunoreactive Trypsinogen (IRT) measurement and are influenced by the same variables affecting such measure. Sample collection age (SCA) is one of such variables, and due to the inverse relationship between the IRT concentration and the newborn´s age, to adjust the cut-off value (CO) is recommended in order to avoid false negative results. OBJECTIVE: To present the results of the statistical evaluation of the IRT distribution in a newborn population of Buenos Aires Province-Argentina during the neonatal period, in order to determine the IRT variation according to the SCA and to establish an adjusted-SCA CO.

MATERIALS AND METHODS: IRT was measured using the AutoDELFIA Neonatal IRT METHOD: A population of 164,593 newborns aged between 1 to 45 days of life (DOL) screened during 2017 was analyzed. Newborns were grouped in 15 DOL ranges. Mean, median, and 99.5 and 99.9 percentiles were calculated. CO was defined considering the 99.5 percentile.

RESULTS: Samples of most newborns (89.9 %) were collected during the first 5 DOL, and 96.4 % during the first 10 DOL. Barely 0.8 % of samples were collected the 1st DOL. IRT mean, median and 99.5 percentile showed a very similar behavior with almost constant values between 1-11 DOL. From 11th DOL onwards IRT showed a marked decrease until it become constant again from 15th DOL onwards. 99.9 percentile was difficult to systematize due to its erratic behavior. The IRT CO was defined at 64.0 and 55.0 ng/ml for newborns ≤ 11 DOL and ≥ 15 DOL respectively, and adjusted with an order-2-polynomial function in the range 11-15 DOL.

CONCLUSIONS: As expected, IRT concentrations showed a decrease with the newborn´s age during the neonatal period, highlighting the need to use IRT CO adjusted according to the SCA in order to avoid the loss of CF cases.