

Abstract

Aim

We created a new reference standard focusing on the hemispheric anteroposterior cerebellar diameter (APCD) in addition to the transverse cerebellar diameter (TCD) and discussed whether or not the cerebellar measurement was useful for the detection of Trisomy 18 (T18).

Material and Methods

In 150 normal fetuses between 14 and 36 weeks of gestational age (GA), the TCD and APCD were prospectively measured. In 26 cases with T18, the value was compared with the control.

Results

At <22 weeks of gestation, the TCD reference standard was calculated as follows: $TCD = (1.027 \times GA) - 0.674$ ($R^2 = 0.97$, $P < 0.001$). The reference standard of the APCD was calculated as follows: $APCD = (0.682 \times GA) - 3.925$ ($R^2 = 0.73$, $P < 0.001$). In 8 cases with T18, the TCD was below the 5th percentile value in 7/8 (88%) cases and the APCD was below the 5th percentile value in 8/8 (100%) cases. At >22 weeks of gestation, the reference standard of the TCD was calculated as follows: $TCD = (1.603 \times GA) - 13.216$ ($R^2 = 0.92$, $P < 0.001$). The reference standard of the APCD was calculated as follows:

$APCD=(0.859 \times GA) - 7.30$ ($R^2=0.84$, $P<0.001$). In 18 cases with T18, the TCD was below the 5th percentile value in 14/18 (78%) cases and the APCD was below the 5th percentile value in 18/18 (100%) cases.

Conclusion

APCD reference standard, divided by the gestational age of more or less than 22 weeks, might be useful to diagnose T18.