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Letter to the Editor

S100B protein and amniotic fluid

Studies concerning S100B determinations in amniotic fluid are recent and, in our view, comprise at the moment an interesting field of research. Thus, we read with great interest the report of Gazzolo et al. [1], "Amniotic fluid levels of S100B protein in normal and trissomy-21 foetuses" published in this journal [1]. In a previous paper published by our group [2], we also demonstrated the S100B increase in amniotic fluid of pregnancies with Down syndrome fetuses. Although the absolute concentrations of S100B observed by Gazzolo et al. were somewhat different from our study, the magnitude of the increase was very similar (1.6-fold compared with 1.7-fold in our study). Then, for us, it is very exciting that our findings were confirmed.

S100B protein is a member of the S100 family of calcium binding proteins implicated in intracellular and extracellular regulatory activities [3]. The gene of this protein has been mapped to 21q22.2–q22.3 [4] and, due to the gene dosage effect, S100B is present at higher concentrations in the circulation of adults [5] and fetuses [6] with Down syndrome. However, Abraha [7] demonstrated that measurement of maternal serum S100B protein concentration has no usefulness in Down syndrome screening.

We and Gazzolo et al. studied the S100B protein concentrations as an additional diagnostic tool for the identification of pregnancies with fetuses affected by Down syndrome. We found increased concentrations in the amniotic fluid in these gestations [1,2]. We also observed high concentrations of S100B protein in pregnancies with trisomy 18 and with familial congenital miocardiopathy (unpublished results), whereas Sindic et al. [8] found increased S100 concentrations in pregnancies affected with anencephalic fetuses. Another two novel S100 protein (CAAF1 and CAAF2) were described to be present in high concentrations in amniotic fluid [9], leading us to presume a relevant role of the S100 family in this biological medium.

Despite of amniocentesis is a high-risk invasive procedure, these preliminary findings provide evidence for the potential application of S100B protein determination in amniotic fluid for the detection of fetal chromosomal and congenital diseases. However, studies concerning S100 family of protein in amniotic fluid are just beginning and its physiological and pathological involvement still needs to be clarified.

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