

Title	The amniotic S100B protein expression and its concentration in amniotic fluid in the third trimester of normal and pre-eclamptic pregnancies
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学位論文名	The amniotic S100B protein expression and its concentration in amniotic fluid in the third trimester of normal and pre-eclamptic pregnancies (妊娠高血圧症候群における、妊娠後期の羊膜および羊水中の S100B 蛋白濃度についての検討)
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論文内容の要旨

〔 目 的 〕

S100B protein is a unique calcium-binding protein. Its biological role within the cell populations is not completely defined. Some pathological conditions that develop during pregnancy could affect S100B concentrations in the amniotic fluid, cord blood, and maternal serum. The aim of our study was to assess the S100B protein expression in the amnion, amniotic fluid in the third trimester of normal and pre-eclamptic pregnancies.

〔 方法ならびに成績 〕

Amnion, amniotic fluid, maternal peripheral and umbilical cord blood samples were collected from healthy women who delivered at 31-36 weeks (n=17), 37-40 weeks (n=22), and 41-42 weeks (n=21) of gestation and from women who developed pre-eclampsia (n=7), pre-eclampsia with intrauterine growth retardation (IUGR) (n=4), normotensive IUGR (n=7) and gestational hypertension (n=4) during pregnancy. Complicated pregnancies were matched with healthy controls who delivered at 38-40 weeks of gestation (n=35). The expression of S100B in the amnion was assessed by immunohistochemistry, western blot analysis, Rt PCR and real-time (RT)-PCR, and its concentrations in amniotic fluid, maternal and cord blood sera were determined by ELISA. The S100B protein expression in the amnion and its concentrations in amniotic fluid, maternal and cord blood sera of patients in the third trimester of normal pregnancies were not significantly different at various gestational ages. The S100B mRNA expression in the amnion of pre-eclamptic patients and patients with pre-eclampsia complicated by IUGR was significantly higher than that in the control, whereas the normotensive IUGR and gestational hypertension cases did not differ significantly from the healthy controls. However, the amniotic fluid S100B protein concentration of the pre-eclampsia and normotensive IUGR cases was significantly higher than that of the control.

[総 括]

- 1) One of the sources of S100B protein in amniotic fluid is the amniotic membrane.
- 2) The S100B protein expression in the amnion and the S100B protein concentrations in amniotic fluid do not vary significantly in the third trimester of uncomplicated pregnancies.
- 3) In pre-eclamptic pregnancies, a pathological condition that develops during pregnancy can affect the elevation of S100B concentration in the amnion, thus pointing the S100B protein's potential role in the pathophysiology of pre-eclampsia possibly through an oxidative stress. However, normotensive IUGR and Gestational Hypertension might have a different pathophysiological basement.

論文審査の結果の要旨

S100B 蛋白の生物学的な機能は多様であるが、妊娠中に発生する病態での役割はほとんど明らかにされていない。今回の研究の目的は、正常妊娠と妊娠高血圧症候群における、羊水および羊膜での S100B 蛋白の発現を検討することである。

正常妊娠と妊娠高血圧症候群妊娠において、羊水、羊膜を採取し、S100B 蛋白の発現を検討した。

正常妊娠では妊娠 31 週から 42 週まで、羊水および羊膜での S100B 蛋白の発現には変化を認めなかった。

妊娠高血圧症腎症（妊娠中毒症）と、妊娠高血圧腎症に子宮内胎児発育遅延を合併した妊娠では S100B 蛋白の発現が羊水中および羊膜中にて亢進していた。しかし、妊娠高血圧症や血圧正常の子宮内胎児発育遅延合併妊娠では S100B の発現は正常妊娠と差を認めなかった。

今回の研究で、S100B 蛋白は羊膜および羊水中に存在し、正常妊娠ではその発現は妊娠後期には一定であることが判明した。また、妊娠高血圧腎症（妊娠中毒症）では S100B 蛋白は羊水、羊膜にて発現が増強しており、この蛋白の病態への関与が示唆された。

以上より、本論文は学位に値すると考える。