Exogenous TRH Effects on Prolactin Secretion in Feto-placental Unit

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In order to evaluate the main secreting site of hPRL in amniotic fluid during pregnancy and the effects of exogenous TRH on hPRL secretion, the explants of decidua-chorion, amnion and placental parenchyme obtained from 15 normal term pregnant women were cultured in vitro. The control group was cultured in TRH free medium and experimental groups were cultured in medium with different concentration of TRH. We measured hPRL in culture medium by using radioimmunoassay.

The results were obtained as follows;
1. In control group, the mean daily secretion of hPRL (mean±SEM) in decidua-chorion, amnion and placental parenchyme were 107.60±6.40, 10.89±1.38 and 3.23±0.58ng/100mg respectively. These findings suggested that hPRL was secreted significantly large amount in decidua-chorion and a little amount in amnion but extremely small amount in placental parenchyme.

In experimental groups with addition of 1, 5 and 10μg/ml of TRH, mean daily secretion of hPRL in decidua-chorion were 155.52±6.80, 171.86±8.23 and 194.82±9.32ng/100mg respectively. And hPRL was shown to be significantly increased in all cases when compared with control groups (P<0.01). The mean daily secretion of hPRL in amnion was 13.72±1.53, 15.86±1.69 and 18.81±1.91ng/100mg respectively. And hPRL was shown to be significantly increased in the cases with 5 and 10μg/ml of TRH (P<0.05). But the increased pattern of hPRL was failed to be shown in placental parenchyme.

2. The secretion of hPRL in decidua-chorion on the 1st and the 2nd day of cul-

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ture in control group was 195.21±10.43 and 153.33±12.11ng/100mg respectively and was gradually decreased in following days. The secretion of hPRL on the 6th and the 7th day of culture was rapidly decreased to 55.18±9.47 and 45.97±8.98ng/100mg respectively.

In experimental groups with addition of 1, 5 and 10μg/ml of TRH, the secretion of hPRL were significantly increased in all cases when compared with control group (P<0.05 with 1μg/ml, P<0.01 with 5 and 10μg/ml of TRH). The tendency of dose dependent response was shown in experimental groups.

3. The secretion of hPRL in amnion on the 1st and the 2nd day of culture in control group were 34.67±2.98 and 21.58±3.87ng/100mg respectively and was gradually decreased in following days. It was rapidly decreased to 2.32±0.37 and 1.13±0.37ng/100ml on the 6th and the 7th day of culture respectively.

In experimental groups with addition of 1, 5 and 10μg/ml of TRH, the secretion of hPRL were gradually decreased but with a higher value and less acutely than that of control group until the 4th day of culture (P<0.05). The tendency of dose dependent response was also shown in experimental groups.

4. The secretion of hPRL in placental parenchyme was extremely small amount in both control and experimental groups and there was no significant statistical difference between two groups. The tendency of dose dependent response was not shown in experimental groups.

It is concluded from the above results that the main secreting site of hPRL in amniotic fluid during pregnancy is decidua-chorion but amnion is also shown to secret a small amount of hPRL. It is also believed that TRH is involved in the control of hPRL secretion from decidua-chorion and amnion.

1. 머리말

임신중 human prolactin(이하 hPRL로 약기)는 태아의 수분 및 전해질 및 공급조절에 관여하므로 태아의 탈수상태를 예방할13과 아울러 저질체증에 영향을 미쳐서 태아생장과 치아 태아의 호흡기체증 예방에 필요하다고 알려진 호르몬으로서 점차 그 임상적 의의가 증가되고 있다11.

비임신시 hPRL의 분비는 주로 탈수체제전영장에서 이루어지나 저혈압증 왕력기에는 자궁내막에서도 분비된다12. 그러나 임신중 산모의 혈중, 태아의 혈중 및 양수액에 현저히 증가하는 hPRL의 정량과 분비장소에 대한 아시도 미상인 상태이다13.

임신시 양수액에 증가하는 hPRL의 주된 분비장소로서 Josimovich13 등은 모체의 내하수체, Clements 등14은 태아의 내하수체라고 보고하였으나, Bigazzi 등15은 bromocriptine를 주입한 산모에서 산모의 혈중과 신생아의 혈중 hPRL 값의 현저한 감소를 보였으나 양수액의 hPRL은 변동이 없었다고 하였다. 이 hPRL분비장소로서 탈수-용모도(Golander 등16), 양모(Healy 등17) 및 탈수신경증18,19이 추측되고 있으나 아직도 주된 분비장소에 대하여는 꼬끔히 규명되지 못한 상태에 있다.

Jacobs 등20과 Chang 등21은 thyrotropin releasing hormone(이하 TRH로 약기)이 정상인에서 hPRL분비를 현저히 증가시켜 Grosvenore22와 Mena는 TRH가 탈수체의 Iactrophs의 특수수용체를 지극하여 hPRL의 분비를 증가시킨다고 하였다.

Yiikorkala 등23은 임산부에게 TRH를 주어있을 경우 hPRL혈중을 일으킨다고 보고하였고, Gibbons 등24은 변성학적 또는 생물학적으로 시각하부의 TRH와 유사한 물질이 용모와 태반에 존재한다고 하였다.

Shambaugh III25은 대비추출물을 쥐의 낭상수체에 주입함으로서 대비조직에 존재하는 TRH의 낭상수체에 주입함으로서 대비조직에 존재하는 TRH의 낭상수체에