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# Role of breastfeeding in prevention of Gallstones (GS) related Acute Pancreatitis (AP) after Pregnancy (P)

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**Background:** Several epidemiological studies have showed that parity is related to GS, and this relationship is stronger in young mothers (1).

Biliary sludge (SL) and small GS may appear during P, most of SL and small GS spontaneously disappear during the first year after delivery, mainly in older pregnant (2, 3, 4).

Both SL and GS are associated with AP (5, 6), so a relationship between P and AP is likely to be found.

In a case control population-based study in the Olmsted County we have demonstrated that P is not related to AP, but biliary AP is more frequent in post-partum (P-P) (2 years) and it is more frequent in youngest women (7).

During P the increase in estrogen and progesterone may justify the extraordinary modification in biliary composition before and after delivery. In fact, the elevated estrogen

Increases cholesterol levels in gallbladder bile and elevated progesterone slow gallbladder motility: both mechanisms help in SL and GS precipitation. After delivery progesterone level collapses: SL and small GS may be ejected through common bile duct with chance of AP. Low estrogen, on the other hand, slow cholesterol level and may facilitate SL or GS spontaneous melting. Young age, in which P-P spontaneous disappearance of GS is uncommon and AP is more frequent seems to have a different hormonal nfluence: in fact, in young age ovulation after delivery is prompt to restart respect to older age: ovulatory cycles are associated with increase in estrogen and progesterone serum levels, not so elevated like P, but more than anovulatory cycle. If this speculation was confirmed, breast feeding (BF), that may block ovulatory cycle may work like old age and could reduce P-P AP.

#### Methods

1.We identified all hospital discharge records (HDR) of hospitalized Sicilian women of childbearing age (2011-18). nAP incidence, prognosis, and their relationship with age and GS were evaluated in P, in the 3 years in P-P and in non Pregnant (nP) women.

2. Within the cohort of childbearing age Sicilian women we conducted a population based case control study. We identified all women who delivered in 2013-18 and had AP within 2 years P-P. We reviewed their medical records, and for each case we matched 4 women of the same age (> = 5 years), who delivered in the same day (> = 30 days) in the same hospital without AP.

#### Results

A. In nP 1,564 of 7,236,863 women-years (21.61/100,000 person-years) developed AP. In P 34 of 226,492 women-years had AP (20.02/100,000 person-years). In P-P, In the first 6 months AP incidence had a peak of 95.4/100,000 person-years, it was significantly higher along 2 years. The increased incidence was limited to GS AP in youngest age

B. In the 74 women with AP and in 298 controls at univariate analysis, > 6 months oral contraception history (p < 0.001; OR 3.30; 95% CI 1.33-8.16), previous biliary disease (p < 0.001; OR 5.90; 95% CI 1.98-7.57) and smoking (p = 0.035; OR 2.04: 95%



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CI 1.04-4.0) were predictors of AP. Amenorrhea > = 3 months (p < 0.001 OR 0.34; 95% CI 0.19-0.59) and BF > = 3 months (p < 0.001 OR 0.07; 95% CI 0.03-0.14) were protective. At multivariate analysis, previous biliary disease p = 0.011; OR 5.49; 95% CI 1.48-20.38) and BF > = 3 months (p<0.001; OR 0.06 95% CI 0.03-0.14) were associated with AP.

**Conclusion:** GS AP incidence is increased in youngest women only in the first 2 years after delivery with a peak in the first 6 months. Wmen who breastfeed for at least 3 months and do not have a history of biliary disorders have reduced risk to develop AP in the first 2 years after delivery

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