

**A Rare and Often Unrecognized Brain Meningitis and Hepatopneumonic
Congestion are a Major Cause of Sudden Death
in Somatic Cloned Piglets**

박미령, 조성근, 임여정, 박종주, 김진희

경상대학교, 낙농학과

In human, sudden infant death syndrome(SIDS) is synonyms for the sudden, unexpected and unexplained death of an infant. The incidence of SIDS has been estimated to be from 1 to 3%. Cloning has a relatively high rate of late abortion and early postnatal death, particularly when somatic cells are used as donors of nuclei and rates as high as 40 to 70% have been reported. However, the mechanisms for SIDS in cloned animals are not known yet. To date, few reports provide detailed information regarding phenotypic abnormality of cloned pigs. In this study, most of the cloned piglets were alive at term and readily recovered respiration. However, approximately 82% of male cloned piglets (81/22) died within a week after birth. Significant findings from histological examinations showed that 42% of somatic cloned male piglets died earlier than somatic cloned female piglets, most probably due to severe congestion of lung and liver or neutrophilic inflammation in brain, which indicates that unexpected phenotypes can appear as a result of somatic cell cloning. No anatomical defects in cloned female piglets were detected, but three of the piglets had died by diarrhea due to bacterial infection within 15 days after birth. Although most of male cloned piglets can be born normal in terms of gross anatomy, they develop phenotypic anomalies that include leydig cell hypoplasia and growth retardation post-delivery under adverse fetal environment and depigmentation of hair- and skin-color from puberty onset. This may provide a mechanism for development of multiple organ system failure in some cloned piglets. Th birth weights of male cloned pig in comparison with those of female cloned piglets are significantly reduced(0.8 vs 1.4kg) and showed longer gestational day(120 vs 114). In conclusion, brain meningitis and hepatopneumonic congestion are a major risk factor for SIDS and such pregnancy in cloned animals requires close and intensive antenatal monitoring.

Key words) *Sudden infant death syndrome(SIDS), Clone piglets, Phenotypic anomalies*