

Assessment of Calving Progress and Reference Times for Obstetric Intervention during Dystocia in Holstein Dairy Cows

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Introduction

Dystocia has been defined as a difficult birth resulting in prolonged calving or severe assisted extraction of the calf at birth. Dystocia increased the incidence of stillbirths and calf mortality (within 30 days post-calving), increased the likelihood of trauma on the dam (i.e., paresis), increased uterine disorders (e.g., metritis), and decreased milk yield. To reduce the sequelae resulting from dystocia, training dairy personnel on calving management should be a top priority. The educational program should provide clear recommendations to participants on the signs of imminent birth over time (e.g., calving progress), when and how it is appropriate to intervene, and hygiene practices, among others. The objectives of this observational study were: 1) to assess the time from the appearance of the amniotic sac (AS) or feet outside the vulva to birth in cows with (dystocia) or without assistance (eutocia) at calving, and 2) to estimate reference times for obstetric intervention in Holstein cows that need assistance during difficult births.

Materials and Methods

Cows (92) from one commercial dairy operation were used in this study. Periparturient dairy cows (primiparous, $n = 58$; multiparous, $n = 34$) were placed in a maternity pen and constantly monitored until birth. The calving ease of cows, calving progress (time from AS or feet appearance to birth and frequency and intensity of abdominal contractions during labor), calf birth weight, calf sex, and stillbirths (born dead or died within 24 hours after birth) were recorded. The reference times for obstetric intervention during dystocia were estimated based on values from unassisted births (eutocia). The normal range of times from the appearance of AS or feet outside the vulva to birth was estimated based on the mean + 2 standard deviation (SD) of unassisted births. According to farm protocol, assistance was provided to cows without calving progress 80 minutes after AS appearance or earlier (e.g., to correct malpositions).

Results

Cows with dystocic births had a longer time period from the AS appearance to birth and increased incidence of stillbirth, as opposed to cows with eutocic births. After the appearance of the AS, calving progress was evident every 15 minutes for eutocic births. The estimated reference times from AS appearance to birth was 69.7 minutes (mean + 2 SD) and from feet appearance to birth were 64.6 minutes (mean + 2 SD) for eutocic births. Findings from this study suggested that calving personnel should start assisting cows 70 minutes after AS appearance (or 65 minutes after feet appearance) outside the vulva.

Significance

These findings have important implications for dairy personnel executing the calving tasks. Cows with assisted births (dystocia) had a longer time period from the AS or feet appearance to birth and increased incidence of stillbirths, as opposed to cows with unassisted calving. This study suggested that calving personnel should start assisting cows 70 minutes after AS appearance (or 65 minutes after feet appearance) outside the vulva (based on eutocic births). Under field conditions, the observation of the AS or feet appearance outside the vulva as well as calving progress are clear and concrete landmarks that calving personnel can easily identify. When a malposition is evident (e.g., appearance of one leg outside the vulva) immediately after the AS appearance, obstetric intervention is rendered. The time spent in labor (straining) combined with the time from the AS or feet appearance to birth, and the assessment of calving progress (for eutocic births) should be used to determine the appropriate time for intervention during difficult births under field conditions.