Factors Predisposing to Colic (16-Dec-2003)

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Although there are many beliefs and opinions about factors predisposing to colic in horses, few have been verified by controlled epidemiologic studies. The purpose of this presentation is to review what is known about factors predisposing to colic.

A. Signalment & Anamnesis

1. **Breed** - The evidence regarding association of breed with colic has been conflicting. Arabians have been identified as being at increased risk of colic from several studies (Reeves et al. 1989; Cohen et al. 1995; Reeves et al. 1996; Schmid et al. 2002). Other reports have indicated that Thoroughbred horses may be at increased risk of colic (Hudson et al. 2000; Traub-Dargatz et al. 2001). Standardbred horses have been suggested to be either at increased risk of colic (Sembrat 1975) or decreased risk for surgical colic (Schmid et al. 2002). These differences may reflect variation among studies in the reference population of horses studied, study methods, and failure to account for confounding factors (such as differences among breeds in feeding and exercise practices).

2. **Sex** - There is no clear evidence for a predisposition to colic for any sex when considering colic overall. Stallions were suggested to be at increased risk of colic in a study from Michigan, and geldings were reputed to be at increased risk for recurrent colic in a study from Texas. Other studies from the United States have found no association of sex with colic. It is possible that there are types of colic for which sex is associated with colic. For example, male horses have been identified as being at increased risk of entrapment of small intestine in the epiploic foramen.

3. **Age** - In general, it appears that older horses are at increased risk of colic, but results vary among studies. Some reports have indicated horses < 10 year of age are at increased risk of colic A nation-wide study in the United States indicated that foals (horses < 6 months of age) were at decreased risk. Evidence exists from multiple other studies that the risk of colic increases with increasing age. Differences among these studies in design, population of horses studied, and methods of data analysis likely explain these conflicting results.

4. **Anamnesis** - A number of studies indicate that horses with previous history of colic are at increased risk for developing colic. In addition, horses that have previously undergone surgery for colic are at increased risk of developing colic.

B. Management Practices: Management Practices are of Considerable Importance Because they are Potentially Alterable

1. **Feeding** - Change in diet or feeding practice has been associated with colic in a number of studies. Specific changes associated with increased risk of colic, however, have varied among studies. In Texas, changes in batch or type of hay and changes between any type of concentrate have been associated with increased risk of colic. Increased amount of concentrate fed has been associated with increased risk of colic. Feeding hay in round bales or atypical types of hay has been associated with colic in Texas, presumably because these are sources of hay of lesser quality. Grazing pasture (or indicators of pasture grazing) has been associated with decreased risk of colic. In some circumstances (e.g., excessively lush pasture) or for some diseases (e.g., grass sickness), grazing pasture can be detrimental.
2. **Housing/Stabling** - As mentioned, increased exposure to pasture has been associated with decreased risk of colic; conversely, an increased number of hours spent in a box stall has been associated with increased risk of colic in a number of studies. Larger number of horses at the premises was associated with increased risk of colic in a study in the United Kingdom. Change in housing/stabling has been implicated as increasing risk of colic; however, specific types of changes predisposing to colic have not been described in controlled studies. Change in housing/stabling is often strongly correlated with changes in level of activity.

3. **Activity/Exercise** - Evidence exists of an association between colic and activity/exercise. In Texas, recent change in activity level was associated with increased risk of colic in 2 separate studies. In studies from Virginia and Michigan, horses actively engaged in eventing, training, or showing were at increased risk of colic. In a study from the UK, a recent change in exercise among regularly exercising horses increased the risk of simple colonic obstruction and distension relative to horses with no regular exercise program. Distinguishing effects of exercise, stabling, and transport can be difficult because of their co-association/correlation.

4. **Watering** - Access to and source of drinking water for horses as a risk factor for colic has received relatively limited consideration. Although results of controlled studies are lacking, it is recommended that owners be advised of the belief that it is important to provide access to fresh water and to regularly clean water sources for horses.

5. **Transport** - To the author’s knowledge, only 2 studies have examined the association between transport and colic. In Texas, no association was observed with either recent transport or distance of recent transport. In contrast, a study in the United Kingdom identified an association between transport during the preceding 24 hours and increased odds of simple colonic obstruction or distension. Differences in populations studied, the primary outcome of interest, and study methods may account for this discrepancy.

6. **Anthelmintic Administration** - Although parasites are widely regarded as causing colic, there is conflicting evidence from studies regarding the association of deworming and colic. Some studies have shown an increased risk of colic with either recent deworming (i.e., administration of an anthelmintic) or the number of dewormings for colic. Rotation of anthelmintics was associated with colic in a national study in the United States. A number of other studies have documented decreased risk of colic associated with regular parasite control programs or regular administration of anthelmintics. In the United Kingdom, tapeworm infestation has been associated with 2 specific types of colic: ileal impaction and so-called spasmodic colic. Differences in horse populations, study design, data collection, and data analysis likely explain the conflicting results observed among epidemiologic studies that have considered anthelmintic administration.

7. **Dentistry** - Despite the widely held belief that dental care should improve the health of horses (including reducing the frequency of colic), there are surprisingly little data about this association. In Texas, no association between either the frequency of dentistry procedures and colic was observed, although most horses (both colics and non-colic controls) underwent dentistry at least once each year. Recently, it was reported that increased frequency of dental examinations was associated with a decreased risk of simple colonic obstruction or distension.

**C. Miscellaneous**

1. **Weather** - Many equine clinicians perceive that the frequency of colic is increased with certain weather conditions or changes in these conditions. Epidemiologic evidence of such an association, however, is conflicting. A number of studies have failed to identify an association between weather conditions or changes in weather and colic. A seasonal pattern in the incidence of colic has been described by some studies. One study documented an increased risk of colic among horses that experienced a significant change in weather conditions during the 3-day period prior to examination; however, the specific climatic changes were not determined and this association could have resulted from a recall bias. Differences among studies with respect to design, methods, and populations studied likely contributes to the conflicting results observed for the association of weather with colic.

2. **Cribbing** - A recent study identified a strong association between cribbing behaviour and simple colonic obstruction or distension.

**D. Summary**

A number of factors that predispose horses to colic have been identified. Feeding practices have been identified most consistently. There is great need for standardization of methods for epidemiologic studies of colic, for additional studies to characterize predisposing factors, and for studies of specific types of colic.
References


Gilmour JS and Jolly GM. Some aspects of the epidemiology of equine grass sickness. Vet Rec 1974; 95, 77-80.


Proudman CJ, French NP and Trees AJ. Tapeworm infection is a significant risk factor for spasmodic colic and ileal...


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