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Association of phenylbutazone usage with horses bought for slaughter: A public health risk

Nicholas Dodman [a], Nicolas Blondeau [b], Ann M. Marini [c,*]

[a] Tufts University, Cummings School of Veterinary Medicine, North Grafton, MA, United States
[b] Institut de Pharmacologie Moléculaire et Cellulaire – I.P.M.C., UMR 6097, C.N.R.S./Université de Nice Sophia Antipolis, 660 route des Lucioles, Sophia Antipolis 06560 Valbonne, France
[c] Department of Neurology and Program in Neuroscience, Uniformed Services University of the Health Sciences, Bethesda, MD, United States

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ABSTRACT

Sixty-seven million pounds of horsemeat derived from American horses were sent abroad for human consumption last year. Horses are not raised as food animals in the United States and, mechanisms to ensure the removal of horses treated with banned substances from the food chain are inadequate at best. Phenylbutazone (PBZ) is the most commonly used non-steroidal anti-inflammatory drug (NSAID) in equine practice. Thoroughbred (TB) race horses like other horse breeds are slaughtered for human consumption. Phenylbutazone is banned for use in any animal intended for human consumption because it causes serious and lethal idiosyncratic adverse effects in humans. The number of horses that have received phenylbutazone prior to being sent to slaughter for human consumption is unknown but its presence in some is highly likely. We identified eighteen TB race horses that were given PBZ on race day and sent for intended slaughter by matching their registered name to their race track drug record over a five year period. Sixteen rescued TB race horses were given PBZ on race day. Thus, PBZ residues may be present in some horsemeat derived from American horses. The permissive allowance of such horsemeat used for human consumption poses a serious public health risk.

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1. Introduction

Phenylbutazone (PBZ) was marketed in the United States for the treatment of rheumatoid arthritis and gout in 1952. Serious and often fatal adverse effects such as aplastic anemia and agranulocytosis appeared in the literature within three years of its use (Benjamin et al., 1981; Böttiger and Westerhom, 1973; Cameron et al., 1966; Chaplin, 1986; Deaths due to butazolidin, 1952; Dunn, 1972; Etess and Jacobson, 1953; Hale and DeGruchy, 1960; Leonard, 1953; Mauer, 1995; McCombs, 1958; Nelson et al., 1995; Ramsey and Golde, 1976; Risks of agranulocytosis and aplastic anemia, 1986; Steinberg et al., 1953). The serious adverse effects of PBZ culminated in its unavailability for human use in the United States.

Because of the bone marrow toxicity caused by PBZ in humans, the Food and Drug Administration (FDA) has set no safe levels of PBZ in animals intended for food and bans the administration of this drug in any horse sent to slaughter for human consumption (http://www.fda.gov/cvm/CVM_Updates/buteup.htm).

By 1990, over a dozen foreign-owned slaughter houses in the United States were slaughtering approximately 350,000 horses per year (weekly United States Department of Agriculture statistics up to 2007 when all of the slaughter plants were closed by state statutes: http://www.ams.usda.gov/mnreports/SJ_LS711.txt), and the United States was exporting another 70,000 live horses per year for slaughter to Canada (monthly United States Department of Agriculture statistics: http://www.fas.usda.gov/ustrade/USTExFatus.asp?QI=).

Veterinary records from American horses sent to slaughter for human consumption are not available to the public. Moreover, horses are not raised as food animals in the United States and there appears to be inadequate testing to ensure that horses given banned substances such as PBZ do not enter the slaughter pipeline.

Thoroughbred race horses may have a higher rate of PBZ exposure because of their intense training and racing schedule. Thoroughbred race horses frequently develop training- or race-related musculoskeletal injuries that require treatment with a non-steroidal anti-inflammatory drug (NSAID). Phenylbutazone is the most widely used NSAID in horses because of its availability and cost (Hopes, 1972; Goodrich and Nixon, 2006).

The method of identifying TB race horses by lip tattoo and PBZ administration from race track records makes it possible to determine PBZ exposure in horses that have raced at certain tracks that permit race day PBZ and record its administration.

* Corresponding author. Address: Department of Neurology, Building A, Room 1036, 4301 Jones Bridge Road, Bethesda, MD 20814, United States. Tel.: +1 301 295 9686; fax: +1 301 295 0620.
E-mail address: amarini@usuhs.mil (A.M. Marini).

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In our study, the objective is to show that TB race horses are given PBZ prior to being bought for intended slaughter for human consumption. We present data which shows that some TB race horses sent to intended slaughter for human consumption were given PBZ on race day. The data show that the FDA ban on PBZ usage in horses intended for human consumption is ignored by some members of the race track community and that this ignorance in addition to the fact that approximately one-half of all TBs that are born are slaughtered for human consumption abroad portends a potentially serious health hazard.

2. Methods

We contacted individuals who rescued TB race horses from the slaughter pipeline over a five year study period. Through these individuals, we identified 50 TB horses rescued from slaughter and an additional 18 TB horses that were sent for intended slaughter. Each of the 68 horses could be identified by a lip tattoo registered with the Jockey Club of America and all of the 68 horses have Lifetime Past Performance records that are available on the public database.

The lip tattoo allowed us to find the registered name of each TB horse by submitting the horse's tattoo into the Jockey Club of America database and thus to obtain the race track drug records.

The race track drug record was acquired from two national sources: (1) the Lifetime Past Performance record and (2) individual race track records. Both sources are available to the public. The Lifetime Past Performance record is obtained by entering the registered name of the TB horse into the Equibase database at the following web site: http://www.equibase.com/premium/eqpHorseLookup.cfm?SAP=HLN&PID=50214.

These records reveal a great deal of information about an individual TB horse including all race tracks at which the TB horse raced over its lifetime. TB race horses that raced at one or more race tracks where PBZ given on race day is allowed were documented in the Lifetime Past Performance record. At least three individual race track drug racing records were obtained from eight out of the thirty-four TB race horses that were randomly selected from the study population to ensure that the drug record from the specific race track matched the drug record from the same race track listed in the Lifetime Past Performance record. Individual race track records from a TB race horse that was given race day PBZ were obtained by entering the registered name of the TB horse at the following Equibase web site: http://www.equibase.com/premium/eqpVchartSearch.cfm.

We were able to obtain records (track records and Lifetime Past Performance record) to determine whether PBZ was administered on race day or given within 24 h of a race on 32 horses: all 18 of the non-rescued TB horses and 16 of the 50 rescued horses. National databases were used to determine the number of TB race horses sent to slaughter for human consumption during the five year study window.

The thirty-four TB race horses described in this study came from the West coast, the Midwest and the Northeast of the United States.

3. Results

All eighteen horses sent to intended slaughter for human consumption and 16/16 of the 50 identified rescued TB horses had a positive history of PBZ administration (Table 1). One of the 18 non-rescued horses was not given PBZ on race day but was documented to have been given the drug by a licensed veterinarian prior to being sent to slaughter for human consumption. Another TB race horse that was sent to slaughter for human consumption had documented PBZ in its blood. This horse won at a race track in the United States where all winners must be tested for PBZ blood levels by law. Approximately 91,000 TB race horses were sent to slaughter over the five years that we examined the data.

Table 1
TB horses given PBZ and sent to slaughter or rescue.

TB race horse category	*N*	Positive PBZ track record review (*N*)	Other positive information (*N*)	Positive (%)
Not rescued	18	16	2	100
Rescued	50	–	–	–
Records examined	16	16	–	100
Records not examined	34	–	–	–

The PBZ profile of TB horses bought for intended slaughter is presented in Table 2. The time interval from the last known PBZ administration to intended slaughter ranged from 0.25 to 48 months. It should be emphasized that it is unknown whether additional PBZ was given to any of the horses from the time they left they left the race track to the time the horse was bought for slaughter. It is common for old race track injuries to require additional NSAID treatment after their racing career is over.

4. Discussion

In February 2007, a federal appeals court ruled that the two slaughter houses in Texas were in violation of a 1949 law against selling horsemeat for human consumption (Empacadora de Carnes de Fresnillo vs Tim Curry, 2007), and by March the Texas plants were closed. By September of 2007, a new state law in Illinois (Illinois HB 1711) resulted in the closure of the third and final horse slaughter facility in the United States.

The foreign owners of the three slaughter plants relocated their operations to Canada and Mexico. By the first quarter of 2008, the increased export of American horses to slaughter in Canada and Mexico had replaced the reductions in slaughter within the United States and the total slaughter of American horses had recovered to its 2006 level (Fig. 1). It is normally the case that once a horse ends

Table 2
Data on PBZ administration and slaughter date.

Thoroughbred horse	Date of last known PBZ administration	Date horse sent to slaughter	Approximate time interval (months)
1	6/17/2006	4/18/2008	10
2	6/28/2007	4/18/2008	10
3	9/2004[a]	9/2004	1
4	2/09/2008	4/21/2008	2
5	3/2/2003	3/2003	1
6	12/13/2006	4/18/2008	16
7	6/03/2008	10/17/2008	4
8	9/17/2007	9/2007	0.5
9	–[b]	6/20/2008	0.25
10	10/14/2007	4/11/2008	6
11	03/01/2007	4/18/2008	13
12	10/07/2004	7/2008	45
13	10/30/2004	1/2005	3
14	5/07/2008	10/17/2008	5
15	9/06/2003	4/22/2004	7
16	3/24/1993	3/1993	0.25
17	10/29/2004	11/2004	0.25
18	11/17/2004	2008	48

[a] This thoroughbred race horse was not given PBZ as indicated in the Past Performance Record. A licensed veterinarian provided documentation of PBZ administration prior to being sent to slaughter.

[b] This thoroughbred race horse was not given PBZ according to its Past Performance Record. PBZ was documented in blood via drug testing after winning a race. All winning horses are required by law to have drug testing.

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