

Triage for Emergent Patients

FOCUS:
Emergency/Critical Care



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This study composed a list of veterinary triage discriminators and attempted to determine whether its application could result in more accurate categorization of emergent patients than could intuitive triage. The veterinary triage list (VTL) used as a model the Manchester triage system, a system with 5 categories—red (immediate), orange (very urgent), yellow (urgent), green (standard), blue (nonurgent)—each assigned with a maximum target waiting time (TWT).

TWT categories included 0, 15, 30–60, and 120 minutes and were associated with triage categories red, orange, yellow, and green, respectively. TWTs were prospectively determined by veterinary nurses

(TWT-N) and were estimated based on owner-provided history and visual inspection. A second TWT assessment was performed by the review team (TWT-R). The study group was also retrospectively triaged by the main investigator using the VTL (TWT-VTL). Results for TWT-N and TWT-VTL were compared with those from TWT-R. Intuitive triage by nurses showed significantly less correlation to TWT-R than did triage performed with VTL.

Specific training for veterinary nurses and emergency doctors in performing triage and implementing a standardized triage system was likely to result in more appropriate TWTs for emergency patients.

Commentary

This study compared traditional (ie, intuitive) triage methods with a method using a triage score. Human triage scores were modified to fit emergent veterinary

patients. The score had 68 total discriminators divided into 8 subcategories. The study found that traditional triage was much more likely to “under-triage” more emergent patients, as compared with the retrospective evaluation of cases using the formulated triage score. Traditional triage may not have included an emergent physical examination. Although the triage score has many discriminators and may require more time, it was more likely to result in a correct triage category. An emergent physical examination was also recommended, as parameters discovered during examination can impact the triage score, allowing recognition of more unstable patients.—

Lisa Powell, DVM, DACVECC

Source

Evaluation of a veterinary triage list modified from a human five-point triage system in 485 dogs and cats. Ruys LJ, Gunning M, Teske E, et al. *JVECC* 22:303–312, 2012.

Novel Transmission of *T cruzi*

Research Note



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within the United States. In endemic areas, dogs are considered a major reservoir in the domestic transmission cycle and may act as reservoirs for human infection. Genotyping the dog isolate in this study matched a common raccoon genotype, suggesting that raccoons may serve as a viable reservoir of the parasite for domestic dogs.

Source

Isolation, mouse pathogenicity, and genotyping of *Trypanosoma cruzi* from an English Cocker Spaniel from Virginia, USA. Patel JM, Rosypal AC, Zimmerman KL, et al. *VET PARASITOL* 187:394–398, 2012.

Trypanosoma cruzi, the causative agent of Chagas disease, was recently identified in an English cocker spaniel that had resided in and never left the state of Virginia. *T cruzi* infection is widespread in wildlife throughout North America,

although rarely acquired by humans or dogs



CONTINUES

We Are What We Eat...



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activating the release of host-derived inflammatory mediators. Chronic endotoxemia occurs with human obesity and induces systemic inflammation, which can lead to metabolic syndrome. Eight healthy human volunteers in this study were fed a prudent-style or a Western-style diet for 1 month, with a 1-month washout period between diets. Both diets had slightly over 2200 calories, but the prudent-style diet contained less fat, more carbohydrates, and more calcium and fiber. Protein levels were the same and physical activity (measured with a pedometer) was nearly the same with either diet. There was a significant increase in plasma endotoxin activity levels after participants ate the Western-style diet and a decrease after the prudent-style diet. Feeding the prudent-style diet resulted in a significant decrease in serum TNF- α . There was also a trend for reduced monocyte chemotactic protein 1 and interleukin-8 levels, none of which changed with the Western-style diet. Based on this study, therapy to reduce endotoxemia might reduce systemic inflammation in patients with GI disease or metabolic syndrome.

Source

A high-fat diet is associated with endotoxemia that originates from the gut. Pendyala S, Walker JM, Holt PR. *GASTROENTEROL* 142:1100-1101, 2012.

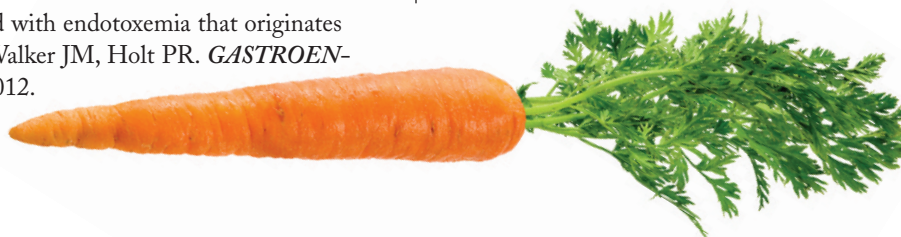
Endotoxemia occurs when endotoxin or lipopolysaccharide from the cell wall of gram-negative bacteria are absorbed into circulation,

...And Then Some!

Changes in the microbial composition of the GI tract are thought to contribute to inflammatory and functional bowel disorders and psychiatric comorbidities. This study was designed to evaluate whether changing the intestinal microbiota of mice affects their behavior and brain biochemistry. The mice were either specific pathogen-free (SPF) BALB/c (with/without sub-diaphragmatic vagotomy or chemical sympathectomy), germ-free BALB/c, or NIH Swiss. Except the NIH Swiss mice, all received a mixture of nonabsorbable antimicrobials in their drinking water for 7 days. The germ-free BALB/c and NIH Swiss mice were colonized with microbiota from SPF NIH Swiss or BALB/c mice. Behavior was evaluated using step-down and light preference tests. Histologic, myeloperoxidase, and cytokine analyses were run on gut samples. Enzyme-linked immunoassay was used to assess for brain-derived neurotrophic factor (BDNF), serotonin, noradrenaline, and dopamine. The study found that oral antimicrobials can cause changes in the intestinal microbiota, resulting in increased BDNF and exploratory behavior; these normalized once the antibiotic was withdrawn. Results of this study provided strong evidence for a microbiota-gut-brain axis that can influence brain biochemistry and modulate adult mice behavior.

Source

The intestinal microbiota affect central levels of brain-derived neurotrophic factor and behavior in mice. Bercik P, Denou E, Collins J, et al. *GASTROENTEROL* 141:599-609, 2011.



Commentary

I have had a long-time interest in gastroenterology; each month I try to catch up on new developments when the gastroenterology journals arrive. There is so much going on and so many advances in this field: it is almost unreal. Readers will remember learning about *intestinal flora* and *bacterial overgrowth*. New terms found in literature for these familiar names include *intestinal microbiota/microbiome* and *dysbiosis*. Our intestinal tracts contain approximately 10 times more cells than in the body, and we continue to learn about the complex relationships we have with this vast and still

poorly understood ecosystem. The microbiome performs a multitude of diverse functions, including a possible role in the genesis of obesity. Enteric bacteria have been implicated as a risk factor for inflammatory bowel disease and dysbiosis has been associated with irritable bowel syndrome (IBS) in humans. Now, pet foods come with prebiotics and we treat our patients with probiotics in an effort to modify the microbiome; more developments are doubtless coming.

These articles are examples of the emerging knowledge in this field. The fact that the microbiome can affect behavioral

patterns is fascinating and may be relevant to such conditions as IBS, raising the possibility that intestinal dysbiosis may contribute to behavioral changes in these patients. In the other article, a high-fat Western diet was reportedly associated with increased circulating endotoxin levels. Our diets might well contribute to endotoxemia by causing changes in GI-barrier function or the composition of the microbiota. This will perhaps give us cause to pause next time we order that prime rib.

—Colin F. Burrows, BVetMed, PhD,
HonFRCVS, DACVIM

CONTINUES

Zoonotic Implications for HIV/AIDS Patients



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Pet ownership may lessen depression and loneliness, but animal contact may pose a risk for HIV/AIDS patients. Zoonoses of concern for HIV-positive patients include *Bartonella* spp, *Bordetella bronchiseptica*, *Campylobacter* spp, *Cryptococcus* spp, *Cryptosporidium* spp, dermatophytes, *Giardia* spp, *Listeria monocytogenes*, *Mycobacterium* spp, *Rhodococcus equi*, *Salmonella* spp, and *Toxoplasma gondii*. Public health responsibilities of veterinarians include disease surveillance, zoonotic disease reduction, and community health education.

In this study with veterinarians and physicians in Tennessee, half of the 181 veterinarians encountered zoonotic diseases in their patient population at least several times per month. Veterinarians were significantly more likely than physicians to indicate that veterinarians should be advising clients with HIV about zoonotic risks. A high percentage (71.3%) of the 201 physicians who had treated HIV-positive patients had never or almost never asked patients if they owned or had contact with animals. Results suggested that veterinarians play a primary role in educating clients on zoonotic risks, especially in households with immunocompromised individuals. Several implications that may reduce zoonotic risks were identified: increased communication between veterinarians and physicians, increased communication between HIV/AIDS patients and healthcare providers, increased availability of education materials, and increased participation in zoonoses education by healthcare providers.

Commentary

Although the overall risk for zoonotic transmission from pets to HIV/AIDS patients is low, this study emphasized the veterinarian as the most informed source of client education on animal-transmitted diseases. Although promoting antiparasitics and performing routine wellness checks can become tedious, the importance of increased communication and availability of educational materials can help healthcare delivery to immunocompromised individuals.—Heather Troyer, DVM, DABVP, CVA

Source

A survey of Tennessee veterinarian and physician attitudes, knowledge, and practices regarding zoonoses prevention among animal owners with HIV infection or AIDS. Hill WA, Petty GC, Erwin PC, Souza MJ. *JAVMA* 240:1432-1440, 2012.