

Address Infant and Toddler Behavior During Anaphylaxis Assessment



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PRACTICE CHALLENGE

The interpretation of age-appropriate infant and toddler behavior can make the assessment of potential anaphylaxis challenging. These young children are nonverbal and cannot express subjective symptoms¹ or specify the cause or location of discomfort. It is important to know that changes in mental status can be secondary to cardiovascular involvement in anaphylaxis² and range from inconsolability to hypotonia, lethargy, or loss of consciousness. Less severe allergic etiologies of behavioral change can be secondary to discomfort caused by pruritis or abdominal pain. In addition, expected behaviors exhibited by this age group due to nonallergic causes can overlap with mental status change secondary to anaphylaxis (Table I). With crying, no matter the cause, comes expected tachycardia. Use of heart rate is integral in assessing a baby, especially if experiencing other symptoms, for potential cardiovascular symptoms and signs of anaphylaxis.² Attempts to ascertain the cause of crying or irritability and correcting the problem should be prioritized.

PRACTICE SOLUTION

Prioritize comfort, address nonallergic causes, and use play to assess an infant's mental status when evaluating for potential allergic reactions/anaphylaxis and when assessing response to

treatment and need for additional treatment. Consoling a crying child is key to assessing mental and cardiovascular status. If measures such as playing, singing, or offering a toy, screen time, or a binkie, do not work, then other causes of crying should be considered. Hunger, wet/dirty diapers or clothing, fear of strangers/staff, pain/injury, overtiredness, and temper tantrums can all be etiologies of crying that may only go away when addressed (Table I). Playing with the children can be a powerful tool in assessing mental status and provide reassuring information when the child is playful and interactive. Clinicians can then teach parents to use similar strategies when recognizing and managing future reactions in the community setting.

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TABLE I. Addressing nonallergic and allergic causes of behavior change in infants during evaluation for allergic reactions and anaphylaxis

Nonallergic*	Behavioral signs	Non-neurological clues	Interventions	Pearls
Hunger	Crying or irritable. Reaching toward food or a bottle	Extended period of time without eating or without eating carbohydrates. Common in prolonged challenges	If NPO not necessary, consider minimal feed with formula or primarily carbohydrate for toddlers	Caution during reactions especially if potential for airway compromise. Careful not to overfeed, especially if potentially experiencing reaction (consider airway). Expect resolution of crying or irritability after feed
Fear	Crying, irritable when approached or touched by staff	Similar behavior/pattern in the past. Ongoing stranger anxiety. Recent fear inducing medical visit	Consolidate vitals and physical examination by team members. Minimize restraint and separation from parents	Examine young children where they are most comfortable (eg, parents' lap). Use play and favorite activities to gain trust. Attempt relatively nonthreatening ways to get an accurate heart rate followed by all necessary components of the examination
Wet/dirty diaper or cold/hot	Crying, irritable similar to past need for diaper or clothing change	Wet/dirty diaper or clothes. Consider warmth of child's clothing in the current environment	Change diaper or clothes. Add or remove layers of clothes as needed	Have available diapers and spare clothes
Temper tantrum/frustration	Crying similar to tantrums in past. Grabbing for or getting away from person, object, or activity	Determine if preceded by a typical trigger	Behavioral modification or give desired object or activity	If unable to discontinue, reassess and look for other causes including allergy
Tired/overtired	Sleepiness or irritability	Determine usual nap time and time between naps	Allow child to nap	Consider pulse ox probe on foot to allow for easy access of HR. Attempt to position so periodic skin checks occur without waking child
Pain/injury	Crying, irritable, inconsolable	Injury witnessed. Evidence of injury on examination (eg, bruise, laceration, hair tourniquet, foreign body in eye, etc). Child localized injury with pointing, favoring, limping, unilateral eye rubbing, etc	Management of underlying etiology	Consider discontinuing food challenge or procedure if pain does not immediately improve. If inconclusive then reschedule. If injury during food challenge requires transfer (eg, ED for laceration suture), then must consider continued observation if mid food challenge
Allergic	Behavioral Signs	Non-neurological clues†	Interventions	Pearls
Pruritus	Crying or irritability	Visible scratching, rubbing	Symptomatic treatment. Treat with epinephrine if accompanied by additional symptoms and criteria for anaphylaxis met	Significant pruritus can cause irritability and crying that can then cause tachycardia even if lack of cardiovascular involvement. Avoid sedating antihistamine so mental status can continue to be observed

Abdominal pain	Crying or irritability	Associated subtle GI symptoms including back arching, knees to chest, spitting up (eg, effortless, small volume), flatulence in addition to more obvious vomiting and/or diarrhea	Symptomatic treatment including corticosteroids, antihistamine, H2 blockers, and/or epinephrine. Treat with epinephrine if criteria for anaphylaxis met	Epinephrine can improve significant abdominal pain associated with reactions and anaphylaxis. In setting of anaphylaxis, consider fluid bolus if unresponsive to epinephrine. Avoid sedating antihistamine so mental status can continue to be observed
Cardiovascular symptoms				
Compensated Shock ²	Irritability, inconsolability, or lethargy	Tachycardia (when not crying), cool, pale extremities (PALS)	Treatment with epinephrine if criteria for anaphylaxis met. Include signs of compensated shock as CV symptoms. Do not await hypotension	Look for return to baseline behavior after appropriate treatment with epinephrine. Use comfort and mental status as additional clues to determine need for additional epinephrine
Decompensated Shock ²	Obtunded, syncope, or hypotonia	Cyanosis/mottling, tachypnea, hypotension (PALS) in addition to those in compensated shock	Treatment with epinephrine, epinephrine infusion, fluid boluses, advanced care as necessary	Look for improved mental status with appropriate treatment with epinephrine. Protect airway, consider NPO status

CV, Cardiovascular; ED, emergency department; GI, gastrointestinal; HR, heart rate; NPO, nil per os; PALS, pediatric advanced life support.

*Please note that although this list includes common etiologies of behavior change potentially encountered by clinicians when evaluating potential IgE-mediated allergic reaction, it is not intended to be completely comprehensive. Consider other potentially life-threatening etiologies including food protein–induced enterocolitis syndrome, choking, head trauma, diabetic ketoacidosis, and so on.

†Additional signs and symptoms typical of allergic reactions can be found in National Institute of Allergy and Infectious Disease/Food Allergy & Anaphylaxis Network 2006 Diagnostic Criteria for Anaphylaxis, and the American Academy of Pediatrics Allergy and Anaphylaxis Emergency Plan.