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Instructions for families and referring PCPs regarding use of IV contrast in children under 3 years of age.

- FDA recommends monitoring of pediatric patients from birth through 3 years for the possibility of hypothyroidism or a temporary decrease in thyroid hormone levels following exposure to iodinated contrast media (ICM).

What are iodine contrast media?

Iodine contrast media (ICM) are intravenous injections used to image the heart and blood vessels, they are used for CT angiograms and cardiac catheterization procedures.

What should parents and caregivers do?

Parents and caregivers should talk to your child's health care professional for additional information or if you have any questions or concerns about your child receiving an ICM injection. Babies and young children typically do not show any visible signs of thyroid problems and may need to be monitored by their health care professionals after receiving ICM.

What should health care professionals do?

- Consider evaluating thyroid function within 3 weeks, especially in term and preterm neonates. If thyroid dysfunction is detected, treat and monitor thyroid function clinically as needed.
- Thyroid dysfunction characterized by hypothyroidism or a temporary decrease in thyroid hormone levels has been reported after single exposure and multiple exposures to ICM.
- Pediatric patients from birth through 3 years warrant closer monitoring to prevent an underactive thyroid during early life that may harm motor, hearing, and cognitive development and may require transient T4 replacement therapy.
- Certain pediatric patients are at an increased risk, including newborns and those having very low birth weight, prematurity, or the presence of cardiac or other conditions such as those requiring care in neonatal or pediatric intensive care units. Patients with cardiac conditions may be at greatest risk since they often require high doses of contrast during invasive cardiac procedures such as catheterization and computed tomography (CT).
- The FDA does not define the frequency of thyroid function testing surveillance and there is no medical literature or sufficient experience to provide guidance. Pediatric Cardiology Center of Oregon suggests: First thyroid function panel within 3 weeks post imaging procedure using iodine contrast media; every 6 months under 2 years of age; and then again at 3 years of age. More frequent testing if results are abnormal, consider endocrinology consultation.

References:

1. Ahmet A, Lawson ML, Babyn P, Tricco AC. Hypothyroidism in neonates post-iodinated contrast media: a systematic review. *Acta Paediatr* 2009;98:1568-74.
2. Hallett A, Evans C, Moat S, Barton J, Warner J, Gregory JW. Hypothyroidism in preterm infants following normal screening. *Ann Clin Biochem* 2011;48:572-4.
3. Thaker VV, Leung AM, Braverman LE, Brown RS, Levine E. Iodine-induced hypothyroidism in full-term infants with congenital heart disease: more common than currently appreciated? *J Clin Endocrinol Metab* 2014;99:3521-6.

