Contrast Ultrasound in Children: New Developments

**Kurz Zusammenfassung:** It was in the mid-90s when non-cardiac contrast ultrasound (US) started to be integrated as a diagnostic imaging alternative in children. This off-label pediatric US modality spread gradually from Germany to many other European countries and beyond. It took almost 20 years before the Food and Drug Administration (FDA) of the United States approved it for pediatric use in 2016. The approval specifically pertains to intravenous (IV) use for liver imaging and intravesical application for detection of vesicoureteric reflux. This measure spurred fast expansion of pediatric contrast US. The current applications encompass different routes of administration. IV contrast US in children includes the following indications: brain (ischemia), thyroid (nodules, -itis), lymph nodes (mass, -itis), lung (pneumonia), gallbladder/pancreas/spleen/kidneys/bladder (mass, trauma, -itis), bowel (IBD, NEC), uterus/vagina (mass, -itis), ovaries/testes (mass, torsion), soft tissues (mass, abscess), joints (hip dysplasia) and transplant organs (complications). Main intracavitary application is contrast-enhanced voiding urosonography (ceVUS) with emergent ones being contrast-enhanced genitosonography (ceGS) and colosonography (ceCS). Interventional pediatric contrast US is growing fast in the evaluation of post-procedural organ perfusion, enteric tube placements, guidance for abscess drainage and others. Recently, intralymphatic contrast US was introduced for facilitating pediatric MR lymphangiography. Prospective pediatric contrast US research is expanding including multi-center ones and garnering unprecedented grant support. Focused and continuous education in pediatric contrast US at many different venues has facilitated the fast spread of the modality in the USA.

**Lernziele:**
1. Appreciate the impact of FDA approval of the first US contrast agent in children.
2. Learn about the expanded off-label use of US contrast agents in children.
3. Understand the direction pediatric US contrast research is taking.