

Theme: General Pediatrics

Pediatric Tele dermatology (*JAMA Dermatol.* 2017;153:1243-8)

Advances in smartphone photography (both quality and image transmission) may improve access to care via direct parent-to-clinician telemedicine. However, the accuracy of diagnoses that are reliant on parent-provided photographs has not been formally compared with diagnoses made in person. This study assessed whether smartphone photographs of pediatric skin conditions taken by parents are of sufficient quality to permit accurate diagnosis. Forty patient-parent dyads at a pediatric dermatology clinic at the Children's Hospital of Philadelphia were enrolled to assess concordance between diagnoses made by an independent pediatric dermatologist based on in-person examination and those based on parental photographs. Half of the patient-parent dyads were randomized for a secondary analysis to receive instructions on how best to take photographs with smartphones. Clinicians were blinded to whether parents had received photography instructions. Half of the patient-parent dyads received a simple, 3-step instruction sheet on how best to take photographs using a smartphone (intervention group); the other half did not (control group). Among the 40 patient-parent dyads, overall concordance between photograph-based versus in-person diagnosis was 83%. There was no statistically significant effect of photography instructions on concordance.

In this era, smartphone photography by parents can accurately be used as a method to provide pediatric dermatologic care. This is especially useful if the patient lives far away and cannot reach a dermatologist soon.

Dexlansoprazole for gastroesophageal reflux disease (*Dig Dis Sci.* 2017;62:3059-68)

Proton pump inhibitors are commonly used to treat gastroesophageal reflux disease (GERD) and nonerosive GERD (NERD) in adolescents and adults. Despite the efficacy of available medications, many patients have persisting symptoms, indicating a need for more effective drugs. This phase-2, open-label, multicenter study aimed to assess the efficacy of dexlansoprazole delayed-release capsules in adolescents (age 12-17 y) for treatment of symptomatic NERD. Adolescents with endoscopically confirmed NERD received a daily dose of 30 mg dexlansoprazole for 4 weeks. The primary end point was treatment emergent adverse events experienced by patients. Heartburn symptoms and severity were recorded daily in patient electronic diaries and independently assessed by the investigator, along with patient-reported quality of life, at the beginning and end of the study. Diarrhea and headache were the only adverse effects reported by patients. Dexlansoprazole-treated patients reported a median 47.3% of days with neither daytime nor nighttime heartburn. Symptoms such as epigastric pain, acid regurgitation, and heartburn improved in severity for 73-80% of patients.

Authors concluded that 30 mg dexlansoprazole in adolescent NERD is generally well tolerated and had beneficial effects on improving heartburn symptoms and quality of life.

Ondansetron for Rotavirus diarrhea (*PLoS One.* 2017;12:e0186824)

Rotavirus and norovirus cause acute gastroenteritis with severe diarrhea and vomiting, symptoms that may lead to severe dehydration and death. The objective of this randomized double-blinded placebo-controlled study was to investigate whether ondansetron, a serotonin receptor antagonist, could attenuate rotavirus- and norovirus-induced vomiting and diarrhea, which would facilitate oral rehydration and reduce need for hospitalization. Children (age 6 mo to 16 y) with acute gastroenteritis were enrolled ($n=104$) and randomized to one single oral dose (0.15 mg/kg) of ondansetron or placebo. The number of diarrhea and vomiting episodes during the 24 hours following treatment was reported as well as the number of days with symptoms. Pathogens in faeces were diagnosed by real-time PCR. Outcome parameters were analyzed for rotavirus- and norovirus-positive children.

One dose of oral ondansetron reduced duration of rotavirus clinical symptoms with a median of two days. Furthermore, ondansetron reduced diarrhea episodes, most pronounced in children who had been sick for more than 3 days before treatment. Authors concluded that Ondansetron may be a beneficial treatment for children with rotavirus gastroenteritis.

Biomarkers of e-waste pollution (*Environ Int.* 2018;115:117-26)

Air pollution is a risk factor for cardiovascular disease (CVD), and cardiovascular changes in childhood may contribute to the development and progression of cardiovascular illnesses later in life. The aim of this study was to investigate the effect of air pollutant exposure on the child sympatho-adrenomedullary (SAM) system, which plays a vital role in controlling the cardiovascular system. Two plasma biomarkers (plasma epinephrine and norepinephrine) of SAM activity and heart rate were measured in preschool children living in Guiyu, China. Air pollution data, over the 4-months before the health examination, was also collected. Environmental PM_{2.5}, PM₁₀, SO₂, NO₂ and CO, plasma norepinephrine and heart rate of the e-waste recycling area were significantly higher than for the non-e-waste recycling area. PM_{2.5}, PM₁₀, SO₂ and NO₂ data, over the 30-day and the 4-month average of pollution before the health examination, showed a positive association with plasma norepinephrine level. At the same time, plasma norepinephrine and heart rate on children in the high air pollution level group (≤ 50 m radius of family-run workshops) were higher than those in the low air pollution level group.

These results suggest that air pollution exposure in e-waste recycling areas could result in an increase in heart rate and plasma norepinephrine, implying that e-waste air pollutant exposure impairs the sympatho-adrenomedullary system in children.

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