Received: 10 June 2020 | Revised: 30 June 2020 | Accepted: 5 July 2020

DOI: 10.1111/dth.13977

DERMATOLOGIC THERAPY WILEY

LETTER

At-home dose escalation of propranolol for infantile hemangiomas during the COVID-19 pandemic

Dear Editor,

The novel coronavirus disease 2019 (COVID-19) has drastically changed our life and the health care delivery worldwide. A widespread reduction in ambulatory visits has been documented for all the different specialties in order to minimize the risk of exposure and transmission of COVID-19. Therefore, the use of telemedicine has been widely implemented in different dermatological fields giving the opportunity to rapidly identify new clinical entities related to the pandemic virus[1,2] and to be able to follow-up patients with chronic skin diseases.[3,4] Infantile hemangiomas (IHs) often require urgent evaluation and risk stratification to determine which infants need treatment and which one could be managed with continued observation.[5] Since most of the IH growth is between 1 and 3 months, prompt initiation of therapy with propranolol is the gold standard for those children requiring treatment. As the need for early treatment could be hindered by parents' fear to access public hospitals during the pandemic period, since the last days of February, we encouraged pediatricians and colleagues to send us pictures (via email or WhatsApp) to perform a first screening of patients with higher risk IH needing beta-blocker treatment.[5] From March to May 2020, we identified seven children with IH at high risk of scarring

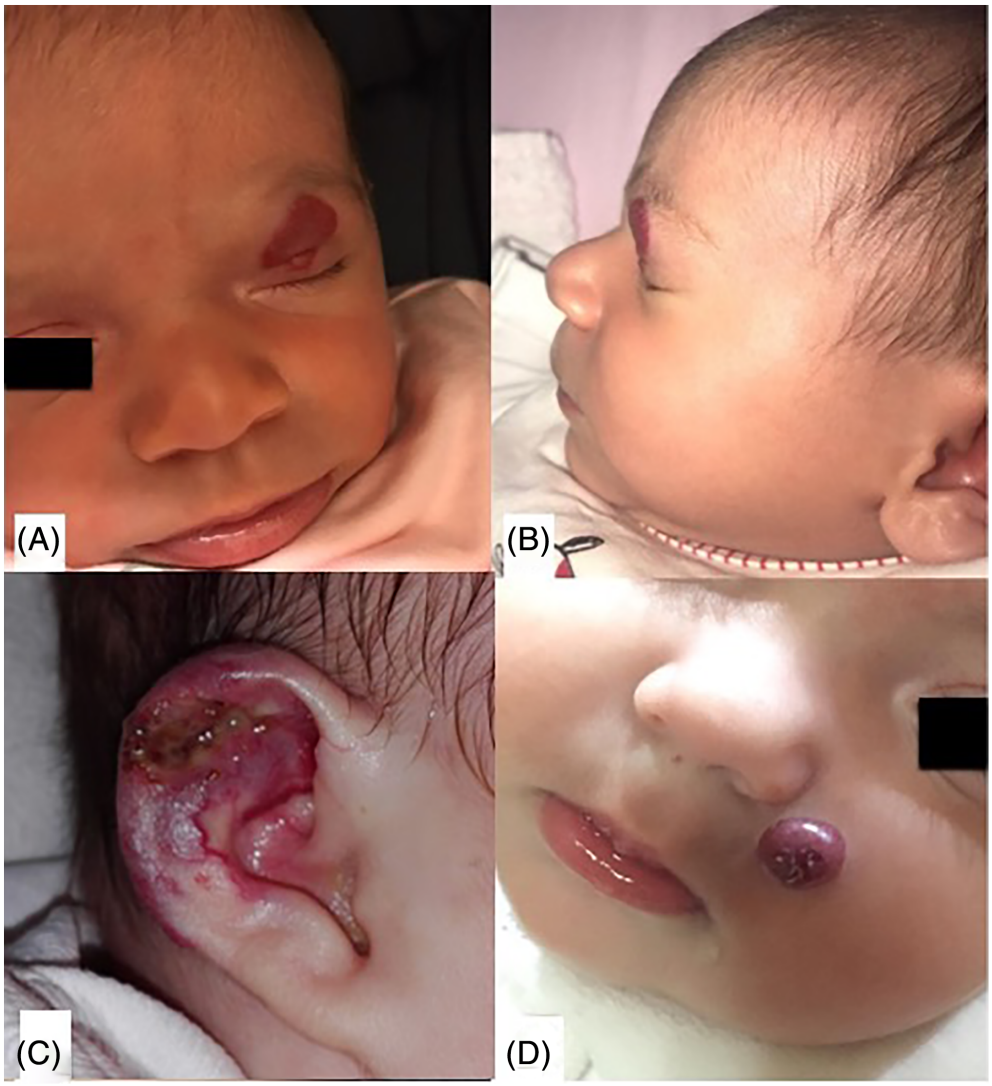

FIGURE 1 A, Infantile hemangioma (IH) on the left eyelid (photograph sent by mother). B, Different view of the IH on the first day of treatment (our clinical photograph which shows the "deep" component of the lesion not visible on the WhatsApp picture). C, IH ulcerated on the ear lobe. D, IH on the cheek (note the early ulceration)

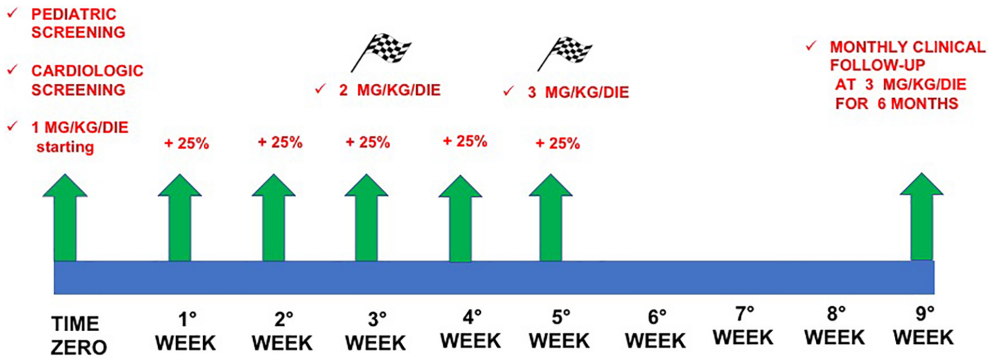

FIGURE 2 Proposed protocol of dose escalation of propranolol for infantile hemangioma during the coronavirus disease 2019 (COVID-19) pandemic

and/or disfigurement due to the localization (face and eye) or early ulceration and requiring propranolol treatment. We decided to perform at least one direct clinical evaluation since the received pictures were often of low quality, posing a risk of misleading (Figure 1). After confirming the indication for propranolol therapy, all the patients, on the same day, carried out a cardiologic and a pediatric evaluation. If no contraindications were present, treatment was immediately started at the standard dose of 1 mg/kg daily in two divided doses. Usually, as a standard of care, children come back a week later to increase the dosage to 2 mg/kg daily and the third week to achieve the maximum daily dosage of 3 mg/kg. During this period, clinical controls, such as blood pressure, heart rate, glycemic stick and weight of the child, are usually evaluated.

In this emergency situation, to avoid unnecessary access to our hospital that is heavily engaged in the treatment of COVID-19 patients, we decided, after informed consent, to slowly increase the dose of the drug at home and to monitor the treatment by telemedicine with parents and with the referring pediatrician. We considered ethically correct to implement this protocol, given the high safety profile of propranolol, with an almost complete absence of adverse events when properly used.[6] In our "emergency" protocol, we addressed families to increase the dose of the drug by 25% each week achieving the dosage of about 2 mg/kg daily (1.95 mg/kg) after 3 weeks and the maximum dosage of about 3 mg/kg daily (3.05 mg/kg) after 5 weeks (Figure 2). We decided to scale up the dose of propranolol to the maximum dose suggested, as it has been clearly demonstrated that there are no differences of adverse events incidence between 1, 2 or 3 mg/kg.[7] Parents were thoroughly counseled about clinical signs of potential adverse events and advised to immediately discontinue the drug and promptly inform us and the community pediatrician in case of sign/symptom such as cough, wheezing, gastrointestinal symptoms or lethargy. In all cases, no adverse effects were reported and, in line with the literature data, a good response has been observed. To date, our patients are still followed up with the aid of telemedicine and a control visit has been planned at the sixth month of therapy. We found this protocol really helpful to manage our patients in this particular period; however, we believe that further studies are needed to confirm that at-home scale-up of propranolol could be also used in non-pandemic period, in order to reduce disease burden for families in term of travel, loss of working days and costs.

The patients of this study have given written informed consent to publication of their case details.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

Andrea Bassi[1,2]
Andrea Azzarelli[3]
Angelina Vaccaro[4]
Carlo Mazzatenta[1]

[1]*Dermatology Unit, Lucca-Azienda USL Toscana Nordovest, Lucca, Italy*
[2]*Department of Health Science, University of Florence, Florence, Italy*
[3]*Pediatric Cardiology, Lucca-Azienda USL Toscana Nordovest, Lucca, Italy*
[4]*Neonatology and Pediatrics Unit, Lucca-Azienda USL Toscana Nordovest, Lucca, Italy*

Correspondence
Andrea Bassi, UO Dermatologia, Lucca-Azienda USL Toscana Nordovest, Italy.
Email: bassi76@interfree.it

ORCID

Andrea Bassi https://orcid.org/0000-0002-9157-5189

REFERENCES

1. Piccolo V, Neri I, Filippeschi C, et al. Chilblain-like lesions during COVID-19 epidemic: a preliminary study on 63 patients. *J Eur Acad Dermatol Venereol*. 2020. https://doi.org/10.1111/jdv.16526 [Epub ahead of print].
2. Piccolo V, Neri I, Manunza F, Mazzatenta C, Bassi A. Chilblain-like lesions during the COVID-19 pandemic: should we really worry? *Int J Dermatol*. 2020. https://doi.org/10.1111/ijd.14993 [Epub ahead of print].
3. Gupta R, Ibraheim MK, Doan HQ. Teledermatology in the wake of COVID-19: advantages and challenges to continued care in a time of disarray. *J Am Acad Dermatol*. 2020;83(1):168-169. https://doi.org/10.1016/j.jaad.2020.04.080.
4. Duong TA, Velter C, Rybojad M, et al. Did Whatsapp® reveal a new cutaneous COVID-19 manifestation? *J Eur Acad Dermatol Venereol*. 2020. https://doi.org/10.1111/jdv.16534 [Epub ahead of print].

5. Frieden IJ, Püttgen KB, Drolet BA, et al. Management of infantile hemangiomas during the COVID pandemic. *Pediatr Dermatol*. 2020;37:412-418. https://doi.org/10.1111/pde.14196.
6. Wedgeworth E, Glover M, Irvine AD, et al. Propranolol in the treatment of infantile haemangiomas: lessons from the European Propranolol In the Treatment of Complicated Haemangiomas (PITCH) Taskforce survey. *Br J Dermatol*. 2016;174(3):594-601. https://doi.org/10.1111/bjd.14233.
7. Léaute-Labrèze C, Boccara O, Degrugillier-Chopinet C, et al. Safety of oral propranolol for the treatment of infantile hemangioma: a systematic review. *Pediatrics*. 2016;138(4):e20160353.