

An Exciting Discovery

Recently, there is a new therapeutic option for complicated Infantile hemangiomas (IHs). Propranolol, a non-selective beta-adrenergic antagonist, was discovered by chance to inhibit the growth of IHs. The first report on this new use was published in NEJM in mid 2008.¹



Hemangiomas are the most common tumors of infancy and affect about 10% of infants.² Infantile hemangiomas (IHs) are benign vascular neoplasms and may appear at birth or appear within the first several weeks of life. Most of the cutaneous hemangiomas are located in the head and neck. The trunk and extremities are less commonly involved. They can also occur in extracutaneous areas such as the liver, gastrointestinal tract, larynx and CNS. The natural course of IHs comprises of early proliferation followed by spontaneous involution. The proliferation phase involves rapidly growing of endothelial cells, resulting in the enlargement of IHs. It occurs during the first year of life and most of the growth occurs within the first 4-6 months. Following the proliferation is the slow involution which may take several years to complete. In most cases, sequelae are minimal such as scar formation, telangiectasia, redundant or anetodermic skin. However, some IHs located in vital organs like liver can be life-threatening. Some may lead to local complications such as hemorrhage and

ulceration and permanent structural abnormalities may result especially when facial structures are affected.³ The cause of IHs has not been well elucidated and it was postulated that basic fibroblast growth factor (bFGF) and vascular endothelial growth factor (VEGF) were involved in the growth phase.^{1,3,4}

Therapeutic options

Due to their self-limited course, uncomplicated IHs can be monitored and observed for spontaneous involution and do not require treatment. However, for complicated cases such as those present in life-threatening locations, causing local complications or carrying functional or structural risks should be treated as soon as possible. Conventional medical treatments include topical, oral and intralesional corticosteroids, interferon alpha, vincristine and topical imiquimod.^{2,3}

The discovery of the new use of propranolol

Leaute-Labreze et al. described their observations in the first published report that in all the 32 cases included (mean age at the initiation of propranolol: 4.2 months), change in the color and softening of the lesions were noted within 24 hours after the initiation of propranolol.⁴ The lesions progressively improved until involution was completed. Propranolol was given at 2-3mg/kg/day in 2-3 divided doses. Duration of treatment varied from 2-10 months. Nine cases were reported to develop adverse effects after treated with propranolol. Reported side effects included decreased BP, wheezing, insomnia, agitation, nightmares, profuse sweating and cold hands. One case required discontinuation of treatment because of wheezing.⁴

Mechanism of action

The mechanism of action of propranolol in IHs is still poorly understood. It was hypothesized that propranolol caused vasoconstriction in

IHs, based on the rapid change in color and softening of the lesions.^{4,5} Other possible mechanisms of action postulated include inhibition of production of VEGF and bFGF and triggering the apoptosis of capillary endothelial cells due to the beta-blockade effect of propranolol.^{4,6}

Conclusion

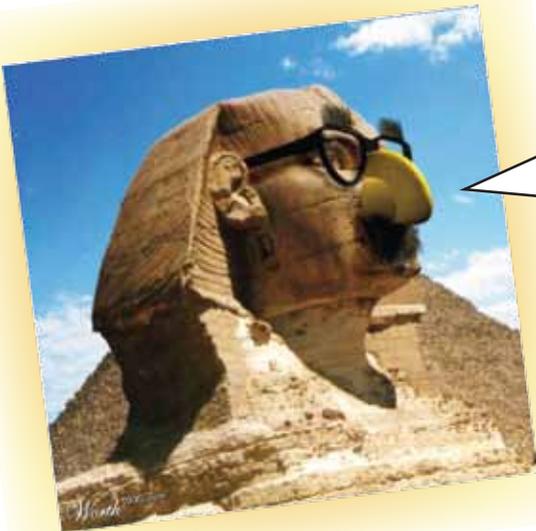
Since the first publication on the use of propranolol for complicated IHs, there have been a number of case reports on successful treatment of complicated IHs with propranolol published subsequently. It is hoped that, in the near future, there will be randomized controlled trials to throw light on the safety and efficacy of propranolol for such use.

References:

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8. Rosbe KW, Suh KY, Meyer AK, et al. Propranolol in the management of airway infantile hemangiomas. *Arch Otolaryngol Head Neck Surg* 2010; 136(7):658-65.

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DO YOU KNOW.....?



進修篇 1 --- 升職進修之路

如果是 HA 同事，都會知道 Resident Pharmacist 要晉升為 Pharmacist，必須要符合 CPO 訂出的幾個條件（由 cpo.home 引錄）：

- i. Satisfactory work performance as well as satisfactory compliance to the requirements of the Resident Pharmacist Training Program;
- ii. Satisfactory completion of all required assignments/projects in the Resident Pharmacist Training Program; and
- iii. Successful enrolment in a relevant postgraduate degree course (except for those with MPharm or Pharm D degree or equivalent qualification).

那麼 List of Relevant Postgraduate Professional Degrees 究竟包括甚麼呢？

答案在本期內找到