Neuro-Ophthalmology

OPTICAL COHERENCE TOMOGRAPHY (OCT) FOR MANAGEMENT OF PSEUDOTUMOUR CEREBRI (PTC) IN ACUTE PROMYELOCYTIC LEUKEMIA PATIENTS (APL) ON ALL-TRANS RETINOIC ACID (ATRA)

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PURRPOSE: In acute promyelocytic leukemia (APL), first-line therapy including All-Trans Retinoic Acid (ATRA), results in remission greater than 90%. Pseudotumour cerebri (PTC) is a side effect of ATRA, especially in paediatric patients. Early detection of PTC, cessation or dosage reduction of ATRA, safe continuation are essential.

METHODS: case report, literature review

RESULTS: A 6 year old boy, with vomiting and headaches, was diagnosed with APL and started on oral ATRA. This was complicated by cerebral venous sinus thrombosis on day 7. Vision, visual field and OCT were normal. When the headaches and vomiting recurred, examination on Day 22 revealed subtle left optic disc swelling with normal vision. OCT showed bilateral increased retinal nerve fibre layer (RNFL) thickness and positive retinal pigment epithelium/ Bruch's membrane (RPE/BM) angles. ATRA was stopped. Therapeutic lumbar puncture was performed. ATRA was restarted on Day 30 at half dose to complete the induction cycle. Improvements in OCT continued as the patient completed subsequent cycles at full dosages.

CONCLUSIONS: OCT was useful to diagnose early PTC, especially with intact vision and other confounding factors of headache. With no normative data in paediatric patients, serial OCT measurements was essential to monitor changes, which appeared to lag behind the clinical improvement. Intracranial hypertension causes increased RNFL thickness, ONH volume, enlarged Bruch's membrane opening, disruption of ellipsoid zone. OCT enables rapid, non- invasive, cross-sectional measurements of the optic nerve head in patients at risk of PTC and is critical for cessation, subsequent re-initiation and continuation of ATRA.

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