NHS
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Referral Support Service

Paediatrics

PA28 Acute Otitis Media (AOM)

Paediatric Normal Values (adapted from APLS)			
Age	Resp Rate	Heart Rate	Systolic BP
Neonate <4w	40-60	120-160	>60
Infant <1 y	30-40	110-160	70-90
Toddler 1-2 yrs	25-35	100-150	75-95
2-5 yrs	25-30	95-140	85-100

Definition

Presence of inflammation in the middle ear, associated with an effusion and accompanied by the rapid onset of clinical features of an ear infection

Uncomplicated: mild pain of <4 days and an absence of red or amber features

Complicated: severe pain, bilateral infection, mastoiditis, labyrinthitis, facial nerve palsy

Exclude Red Flag Symptoms

- Features of mastoiditis
- Intracranial infection can occur in absence of mastoiditis, signs include
    - Increasing drowsiness
    - Meningism/irritability
    - Severe headache persisting despite regular analgesia or worse on lying down/in the morning
    - Persistent vomiting
    - Severe retroorbital pain
    - New onset squint or diplopia – covering up one eye
    - Deteriorating vision – complaining of blurred vision
    - New limb weakness – may exhibit change of hand preference
    - Unsteady gait or coordination issues
    - Pain beyond ears, extensive headache or facial pain
- Haemodynamic instability/shock

Low Threshold for Admission

- Age <3 months
- Age 3-6 months with temperature ≥ 39°C
- Craniofacial syndromes, e.g. Down's syndrome, cleft palate
- Immunodeficiency
- Cochlear implant

General Points

- One of the most common diseases in infants and children
- Peak incidence between 6 and 15 months; 75% occur in children under 10 years
- Usually a self-limiting infection and most will experience symptom resolution within 4-7 days

with symptomatic treatment only

- Respiratory viral infections usually precede or coincide with AOM in children
- Complications are rare in otherwise health patients from developed countries

Differential Diagnoses

Clinical Features	Otitis Externa	Otitis Media
Ear pain	Yes	Yes, often improved when discharge commences
Discharge	Scanty	Mod/severe mucopurulent
Hearing	Later onset muffled	Early onset
Preceding URTI	No	Often
Tender ear canal	Yes, very	No
Periauricular swelling	Yes in severe secondary to soft tissue cellulitis	No unless mastoiditis
Canal swelling	Yes	No
Ear drum	Can be difficult to visualise due to canal debris	Red bulging, oedematous, perforated
Associated with intracranial complications	No (unless immunocompromised)	Yes

Assessment

- New/rapid (days) onset earache and associated loss or reduction in hearing
- In younger children
    - Pulling, tugging or rubbing of the ear
    - Non-specific symptoms, e.g. fever, irritability, crying, poor feeding, restlessness at night, cough, rhinorrhoea
- Otoscopic appearance: bulging tympanic membrane with loss of landmarks, changes in membrane colour (red or yellow), perforation, discharge of pus
- Examine mastoid for tenderness, erythema and swelling
- Note any cervical lymph node enlargement

	Traffic light system for identifying severity of illness		
	Green – Low Risk	**Amber – Intermediate Risk**	**Red – High Risk**
Activity	• Responds normally to social cues • Content/smiles • Stays awake/awakens quickly • Strong normal cry	• Altered response to social cues • No smile • Reduced activity • Parental anxiety	• Not responding normally or no response to social cues • Unable to rouse or if roused does not stay awake • Weak, high pitched or continuous cry • Appears ill
Skin	• Normal skin colour • CRT <2 secs • Normal skin turgor • Warm extremities • Normal eyes	• Normal skin colour • Pallor reported by parent/carer • Cool peripheries • CRT 2-3 secs	• Pale, mottled, ashen • Cold extremities • CRT >3 secs • Sunken eyes
Respiratory	• Normal breathing • <12m: RR <50bpm • 1-5y: RR <40bpm • O_2 sats ≥ 95% • No chest recessions • No nasal flaring	• Tachypnoea • Moderate recessions • May have nasal flaring • <12m: RR 50-60bpm • 1-5y: RR 40-60bpm • O_2 sats: 92-94%	• Significant respiratory distress • Grunting • Apnoeas • Severe recessions • Nasal flaring • All ages: RR >60bpm • O_2 sats:≤ 92%
Circulation	• Tolerating 75% of fluid • Occasional cough induced vomit • Moist mucous membranes	• 50-75% fluid intake over 3-4 feeds • Cough induced vomiting • Reduced urine output	• 50% or less fluid intake over 2-3 feeds • Cough induced vomiting frequently • Significantly reduced urine output
Fever	• Systemically well • T <38°C	• Age 3.6m: T ≥ 39°C • Fever for ≥5d • Rigors • Swelling of a limb or joint • Non-weight bearing limb/not using an extremity	• Age <3m: T ≥ 38°C • Non-blanching rash • Bulging fontanelle • Neck stiffness • Status epilepticus • Focal neurological signs • Focal seizures
	All green	**Any amber and no red**	**If any red**

	• Can be managed at home
	• Give otitis media information leaflet
	• Optimise analgesia
	• Consider antibiotics if
	  • Not improving after 3 days
	  • Otorrhoea (not due to otitis externa)
	  • Immunosuppression
	  • AOM <6 months
		• Consider same day review
		• If you feel the child is ill, needs O_2 support or will not maintain hydration discuss with paediatrician on-call
			• Refer immediately to emergency care – consider 999
			• Bleep paediatrician on-call
			• Consider appropriate means of transport
			• If appropriate commence relevant treatment to stabilise child for transfer
			• Consider starting high flow oxygen support

Management

When to Arrange Emergency Hospital Admission

- Severe systemic infection
- Suspected complications of AOM such as meningitis, mastoiditis, intracranial abscess, sinus thrombosis or facial nerve paralysis

Low Risk for Community Management

- **No antibiotics:** seek advice if symptoms worsen rapidly or significantly, do not improve after 3 days or becomes systemically unwell.
- **Delayed antibiotics**: start if symptoms do not start to improve within 3 days. Seek medical advice if symptoms worsen rapidly or significantly
- **Immediate antibiotics:** Give a 5-7 day course.

Community Antibiotic Treatment

Antimicrobial therapy should considered in the following groups

- Otorrhoea
- Age <2y with bacterial infection

Drug	Age	Weight	Dose
First Line Options			
Amoxicillin	1-11m		125 mg TDS
	1-4y		250 mg TDS
	5-17y		500 mg TDS
Can be added if there is no response to Amoxicillin Use first line if penicillin allergic			
Clarithromycin	1m-11y	<8kg	7.5mg/kg BD
		8-11kg	62.5 mg BD
		12-19kg	125 mg BD
		20-29kg	187.5mg BD
		30-40kg	250mg BD
	12-18y		250mg BD
Second Line Options (should be used in pneumonia associated with influenza)			
Co-amoxiclav	1-11m		0.25ml/kg of 125/31 suspension TDS
	1-5y		5ml of 125/31 suspension TDS
	6-11y		5ml of 250/62 suspension TDS
	12-17y		250/125mg or 500/125mg tablets TDS
Seek microbiologist advice in penicillin allergy			

Referral Information

Indications for referral to ENT

- If ear discharge (otorrhoea) persists for 2 weeks
- If perforation of the tympanic membrane has occurred
- If hearing loss persists in the absence of pain or fever
- Recurrent acute otitis media (≥3 episodes in 6m or ≥4 episodes in 12m)

Patient information leaflets/ PDAs

RSS Parent leaflet

Patient.info leaflet

References

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