Diagnosis and treatment of inflammatory bowel disease in children
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Treatment algorithms

Modified and updated from:
Consensus IBD bij kinderen - Therapie 1997
The Dutch working group on Treatment of Pediatric IBD*
Johanna C Escher and Hans Büller editors

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Integrating the preceding “best available” evidence from pediatric studies and the best evidence from adults studies, the treatment algorithms are proposed for Crohn’s disease, fistulous Crohn’s disease and ulcerative colitis. They are not meant to be an official treatment guideline, but should assist the clinician in making important treatment decisions.

**Crohn’s disease**

When treating mild to moderate Crohn’s disease in children, primary treatment with enteral polymeric nutrition is a good option that has virtually no side effects. With symptoms of stenosis, caused by stricture formation or active inflammation with fistulizing infiltration, surgical resection is indicated in an early phase. Specifically in cases of growth failure, malnutrition or extensive colitis, polymeric feeding may be started as initial treatment, and mesalazine is started in conjunction or in a later phase. If only mesalazine is started, its effectiveness should be evaluated after 2 weeks, and in case of failure, either enteral feeding or steroid treatment is initiated. If enteral feeding is the primary treatment, its effectiveness is also evaluated at 2 weeks, and steroids should be considered if the clinical condition does not improve or worsens. In severe presentations, glucocorticosteroids may need to be started as initial treatment, but enteral nutrition is still a treatment option.

Once steroids are started (usually prednisone 1-2 mg/kg orally, “maximum” of 60 mg/day), the dose is tapered after 4-6 weeks. A tapering schedule of 4-6 weeks is advised (see section on glucocorticoids). Oral budesonide (9mg daily for 8 weeks, then a tapering schedule of 4-6 weeks) may be used if disease is localized to ileum, cecum and/or ascending colon. In case of a flare while tapering, the steroid dose is increased to a higher level. At this point, azathioprine (or its analogue 6-mercaptopurine) maintenance treatment should be started. Also, if a patient needs 2 or more courses of steroids a year, azathioprine is advised. In these scenarios, mesalazine treatment may be stopped (as its effectiveness in maintaining remission is controversial). Prednisone is tapered while azathioprine needs 3-4 months to have its steroid-sparing effect. A longer tapering schedule (of 3 months) is allowed with this approach.

If successful, maintenance treatment with azathioprine has to be continued for years. If no steroid-sparing effect is noted within 6-12 months, azathioprine should be discontinued. In this case, and in case of intolerance to AZA/6-MP, a trial of methotrexate (MTX) may prove beneficial. If so, prednisolone is tapered and methotrexate is continued as maintenance treatment. In case of refractory disease (no remission or steroid dependence despite azathioprine/6-MP or methotrexate), anti-TNF (infliximab) infusions may be tried in combination
with AZA/6-MP (or MTX), preferably in a trial design. If successful, prednisolone is tapered and infliximab and AZA/6-MP (or MTX) is continued as maintenance treatment. If remission (with no steroids) is not achieved with infliximab, surgery may be indicated.

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### Crohn's disease

Consider EN → inactive stenosis → yes → surgery → IFX ineffective
→ no → growth failure, pubertal delay, malnutrition, pancolitis?
→ no → 5-ASA
→ yes → EN + 5-ASA
→ not effective or flare
→ 5-ASA + prednisone or budesonide
→ remission → steroid resistance, flare during tapering, steroid dependency, or steroid toxicity
→ add AZA/6-MP → no remission, or add IFX, taper steroids
→ remission → AZA/6-MP maintenance

5-ASA maintenance

MTX maintenance → remission → MTX → no remission → add IFX, taper steroids → remission → IFX + AZA/6-MP or MTX maintenance

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Fistulae in Crohn’s disease

In fistulous Crohn’s disease, metronidazole is introduced as a supplement to the therapy described in the algorithms for Crohn’s disease. However, if the patient has an abscess, surgical drainage is always required. The effect of metronidazole is assessed after 4-8 weeks; treatment is discontinued 8 weeks after remission (that is, closure of fistulae).

If no remission occurs, azathioprine maintenance treatment is started (if this has not been done yet because of recurrent inflammation). If no effect of azathioprine is observed within 6-12 weeks, a course of intravenous cyclosporine is started. In the case of fistula closure, oral cyclosporine is started and tapered over 8-12 weeks.

At this moment, infliximab (anti-tumor necrosis factor) has not been studied well enough in children, but this may be the drug that is advised in either an early phase or at this point of treatment failure.
Ulcerative colitis

In ulcerative colitis, both initial and maintenance treatment is based on 5-ASA (mesalazine), which can be given orally and/or rectally depending on disease severity and location. If mesalazine fails, prednisone is added (1-2 mg/kg orally, maximum 40 mg/day), and the dose is tapered after 4-6 weeks. A tapering schedule of 4-6 weeks is advised (see section on glucocorticoids). Meanwhile, maintenance treatment with mesalazine is continued. In case of a flare while tapering, the dose is increased to a higher level, or the possibility of additional rectal steroid treatment is considered. In general, following 1-2 failed attempts to reduce or stop the prednisone dose, starting azathioprine (or its analogue 6-mercaptopurine) maintenance treatment is strongly advised. Also, if a patient needs 2 or more courses of steroids a year, azathioprine is advised. Prednisone is tapered while azathioprine needs 3-4 months to have its steroid-sparing effect. A longer tapering schedule (of 3 months) is allowed with this approach. If successful, maintenance treatment with azathioprine (with or without mesalazine) is continued for years. If no steroid-sparing effect is noted within 6-12 months, azathioprine should be discontinued and colectomy has to be considered. In case of severe colitis, rescue treatment with intravenous cyclosporine and subsequent oral tapering may give both patient and parents some time before colectomy is performed.