

## Serotipe salmonella typhi pada anak dengan demam tifoid di Jakarta = Salmonella typhi serotype of children with typhoid fever in Jakarta

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### Abstrak

Indonesia memiliki insiden demam tifoid yang cukup tinggi khususnya kelompok usia anak. Namun terdapat keterbatasan penelitian yang mempelajari distribusi demam tifoid pada anak, sehingga perlu dilakukan penelitian karakteristik pasien demam tifoid yang terbukti dengan temuan isolat S.typhi, penanganannya, pola resistensi antibiotik dan serotipe S.typhi yang bersirkulasi di Indonesia.

Tujuan: Mengetahui karakteristik pasien demam tifoid, diagnosis dan penanganannya, pola resistensi antibiotik dan serotipe S.typhi pada anak di beberapa daerah di Jakarta.

Metodologi: Studi potong lintang dengan total 142 subjek. Evaluasi karakteristik dan uji resistensi antimikroba terhadap 22 subjek demam tifoid yang telah dikonfirmasi dengan kultur darah dan pemeriksaan penunjang Tubex ®TF &#8805;4, serta flagellin based-PCR pada 22 isolat S.typhi untuk analisis serotipe dengan gen fli-B, fli-C dan aro-C.

Hasil: Subjek lelaki lebih banyak daripada perempuan, kelompok usia tertinggi 5-9 tahun dan lama demam sekitar 6-8 hari. Manifestasi klinis demam tifoid yang diamati bervariasi, paling sering diare, mual dan muntah, namun tidak berbeda bermakna dengan penyebab demam yang lain yang memiliki klinis gangguan digestif. Sebagian besar subjek penelitian telah mendapatkan pengobatan sebelumnya (61,3%) namun riwayat pemberian antibiotik tidak diketahui pasti, dengan kecenderungan pemberian terapi golongan sefalosporin lebih banyak daripada antibiotik lini pertama.

Pemeriksaan penunjang dengan Tubex ®TF mendeteksi positif 67 subjek (47,2%) dengan sensitivitas 95,2%, spesifisitas 56,1%. Berdasar konfirmasi temuan isolat S.typhi pada kultur darah, hanya 22 subjek (15,5%) yang benar menderita demam tifoid dengan karakteristik pasien secara umum tidak berbeda bermakna dengan pasien bukan demam tifoid. Berdasarkan pemeriksaan Tubex ®TF dan kultur darah, demam tifoid lebih banyak didiagnosis dengan tepat di rumah sakit bila dibandingkan dengan puskesmas. Ditemukan 22 isolat positif gen aro-C, 20 isolat positif gen fli-C H:d, 2 fli-C H:j dan 2 isolat yang sama positif dengan gen fli-B. Serotipe S.typhi yang bersirkulasi, namun tidak ditemukan perbedaan manifestasi klinis, dan semua isolat masih sensitif terhadap kloramfenikol, ampicilin dan kotrimoksazol.

Simpulan: Angka kejadian demam tifoid yang didiagnosis pasti dengan konfirmasi kultur darah jauh lebih rendah daripada diagnosis klinis. Penelitian ini menunjukkan bahwa kloramfenikol masih dapat diberikan karena serotipe S.typhi yang ditemukan masih sensitif terhadap semua antimikroba.

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Indonesia is known with high incidence of typhoid fever, however there are limited studies available to observe this disease burden in children. Thus a study to observe not only characteristic of patients, its clinical manifestation, diagnostic approach and management, but also thorough evaluation needed to evaluate its drug resistance pattern and Salmonella typhi serotypes circulating in Indonesia.

Objective: To evaluate characteristics of children with typhoid fever, its diagnostics and management, antimicrobial resistance pattern and serotype S.typhi circulating amongst children in Jakarta.

**Methods:** Descriptive study with 142 subjects clinically diagnosed with typhoid fever. Characterization of 22 subjects with confirmed case typhoid fever based on S.typhi isolate finding in blood culture and confirmation with Tubex®TF &#8805;4. Evaluation of antimicrobial resistance pattern and Flagellin based-PCR using fli-B, fli-C and aro-C genes to further analyze serotype S.typhi in children.

**Results:** There were more male than female participants in the study. The highest rate age of group observed were 5 to 9 years-old. Most subjects had fever between 6-8 days with clinical manifestations varied but mostly related to digestive system such as diarrhea, nausea and vomit, however there was not difference between typhoid and non typhoid in clinical manifestation. Majority of subjects had received antibiotics prior to diagnose (61,3%), however many were oblivious to the type of treatment received, yet many were prescribed Cephalosporine instead of firstline treatments.

Tubex ®TF detected 67 cases of typhoid fever (47.2%), sensitivity 95.2%, specificity 56.1%. Only 22 subjects were confirmed case of typhoid fever (15.5%), however all patients yielded similar characteristics to patients in probable case. Based on laboratory assessment tools, doctors in tertiary hospital showed better accuracy in diagnosing patients with suspected typhoid if compared to primary health care one. Meanwhile all isolates showed positive results with aro-C gene controls, 20 showed positive with fli-C H:d genes whereas only 2 with H: j alleles, and 2 yielded positive results for fli-B. No differences were found in clinical manifestation and all serotypes were sensitive to all antimicrobials tested.

**Conclusions:** Confirmed case of typhoid fever is lower in prevalence if compared to probable case in society. Chloramphenicol is still recommended as first drug of choice for typhoid fever since S.typhi isolated in this research did not reveal any resistancy towards first line antibiotics.