生病動物來源之大腸桿菌之抗藥性研究

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摘要

廣效性乙內醯胺酶(extended-spectrum β-lactamases; ESBLs) 是由一些腸內菌科細菌產生，可破壞cephalosporins、penicillin及aztreonam類抗菌劑之活性。自2000年起，人類、產食動物及伴侶動物病例皆有檢測得到產ESBL之大腸桿菌（ESBL producing *Escherichia coli*, ESBL-EC）之報告。本計畫自2013年至2020年間，從生病動物分離得*E.coli* 569株，其中11.8% (67/569)確認為ESBL-EC。檢測67株ESBL-ECs所帶之*bla*基因，最多數為$bla_{\text{CTX-M}}$ 77.6% (52/67)，其次為bla_{TEM}基因14.9% (10/67)，及bla_{SHV}基因為1.5% (1/67)，部分菌株帶有兩種*bla*基因。其中最常見的型別為$bla_{\text{CTX-M-55}}$，及$bla_{\text{CTX-M-14}}$則為次要的型別。所有的ESBL-ECs皆對tetracyclin產生抗藥性，9成以上菌株對於ceftiofur及SXT具抗藥性，其次對於gentamycin、enrofloxacin及amoxicillin之抗藥性別為64.2% (43/67)、53.7% (36/67)及32.8% (22/67)；而本研究之所有菌株對於imipenem皆具感受性。

Antimicrobial-Resistant *Escherichia coli* isolates from Diseased Animals

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Abstract

Extended-spectrum β-lactamases (ESBLs) are a rapidly evolving group of *β*-lactamases that shares the ability to hydrolyze third-generation antibiotics, such as cephalosporins, penicillins, and aztreonam. Since 2000, extended-spectrum beta-lactamase producing *Escherichia coli* (ESBL-EC) infections have increased worldwide in humans, as well as food and companion animals. In this study, 569 *E. coli* isolates from diseased animals, which were obtained from 2013 to 2020, were analysed for anitimicrobial resistance. Sixty-seven out of 569 isolates were confirmed by phenotyping and genotyping to ESBL-EC, with most of them encoding the *bla* genes, such as $bla_{\text{CTX-M}}$ (77.6%), bla_{TEM} (14.9%), and bla_{SHV} (1.5%), while some isolates even encoded *bla* genes from two groups. The dominant *bla* gene variant was $bla_{\text{CTX-M-55}}$, followed by $bla_{\text{CTX-M-14}}$. All ESBL-ECs were resistant to tetracycline, while more than 90% of the strains were resistant to ceftiofur and SXT (92.5-97%). The analyzed ESBL-ECs displayed less resistance to gentamycin (64.2%), enrofloxacin (53.7%), and amoxicillin (32.8%). All isolates in this study remained susceptible to imipenem.