

Determinasi Golongan Darah ABO dari Material Gigi: Informasi Penunjang dalam Identifikasi Forensik

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Abstrak

Ruang lingkup dan cara penelitian : Penelitian ini bertujuan mencari derajat ketepatan penentuan golongan darah ABO dari material gigi yang diambil dari 145 subyek. Determinasi golongan darah dilakukan pada bahan email, dentin dan pulpa serta dari darah pasta pencabutan sebagai kontrol. Sampel dibagi menjadi 4 kelompok : 54 gigi non-karies yang dibelah dua, sebagian segera dilakukan penentuan golongan darah, sebagian lagi dibiarkan dalam suhu kamar ($29\pm 4^{\circ}\text{C}$) selama satu bulan sebelum ditentukan golongan darahnya. Sebagai perbandingan 36 gigi non-karies dikubur dalam tanah selama satu bulan sebelum dilakukan penentuan golongan darah dan 55 gigi karies yang langsung ditentukan golongan darahnya. Penentuan golongan darah dilakukan dengan metode absorpsi elusi.

Hasil dan Kesimpulan : Hasil menunjukkan pada kelompok non-karies, frekuensi ketepatan pada sampel email lebih kecil secara signifikan dibanding dentin, pulpa dan darah ($p < 0,01$), sedangkan antara dentin, pulpa dan darah tidak ada perbedaan yang bermakna. Dan email, hanya 37-59 % yang terdeteksi bertar, diduga disebabkan karena rendahnya fraksi organik gigi dibagian ini. Sampel dentin dan pulpa tidak menunjukkan adanya perbedaan yang bermakna baik pada paparan tanah maupun suhu kamar selama satu bulan. Secara keseluruhan untuk dentin dan pulpa persentase ketepatan penentuan golongan darah pada gigi non-karies berkisar antara 94-100 %, sedangkan untuk gigi karies 65-87 %. Disini terlihat bahwa frekuensi ketepatan penentuan golongan darah dan dentin dan pulpa pada karies pulpa lebih kecil secara signifikan dibandingkan non-karies ($p < 0,01$). Ketepatan penentuan golongan darah antara gigi karies dentin dan karies pulpa tidak terdapat perbedaan yang bermakna.

Dapat disimpulkan bahwa materi email tidak dianjurkan untuk digunakan dalam penentuan golongan darah dari material gigi. Sedangkan dentin, pulpa dan kemungkinan gigi utuh secara keseluruhan dapat dipercaya untuk penentuan golongan darah waupun proporsi ketepatan agak lebih rendah dibandingkan darah secara langsung, materi dari suatu gigi utuh cukup memenuhi persyaratan dalam penentuan golongan darah. Efek kontaminasi mikro-organisme karies secara signifikan juga terlihat dalam hasil penelitian ini, yang berarti membatasi reliabilitas ketepatan penentuan golongan darah dalam identifikasi forensik. Bila dimungkinkan sebaiknya digunakan gigi non-karies dan dalam keadaan terpaksa dipilih seminimal mungkin gigi karies.

.....Determination of ABO Blood Grouping Using Tooth Material: Supporting Information for Forensic Identification
Scope and methods of research: To study the efficiency and robustness of ABO blood grouping from tooth material, extracted tooth samples from 145 people were ABO blood grouped torn enamel, dentine and pulp, with direct blood grouping at the time of extraction as control. Of the 145 tooth samples, a half of 54 teeth without caries and 55 whole teeth with caries were blood grouped immediately (within few days). The other half of the 54 teeth without caries were stored at room temperature ($29\pm 4^{\circ}\text{C}$) for one month. For all cases, straightforward absorption elution technique was used br ABO blood grouping from tooth material.

Results and Conclusions: From enamel, the proportion of correctly ABO blood grouped tooth samples

without caries was only 37 to 59 % and significantly smaller ($p < 0,01$) than from dentine, pulp or control (blood). In comparison, for dentine and pulp 94 to 100 % of the results were correct for teeth without caries, and there was no significant difference between dentine, pulp and control immediately after extraction. With the exception of relatively unreliable blood grouping from enamel, storing non-caries teeth for one month at room temperature appears to exert no significant influence in comparison with immediate blood grouping after extraction. However, one month underground made it significantly less likely ($p < 0,01$ for dentine and pulp) to achieve correct blood grouping from non-caries tooth material in comparison with immediate blood grouping after extraction or one month storage at room temperature. For dentine and pulp, only 65 to 87 % of blood grouping results were correct for teeth with caries. Particularly caries pulpa appears to make correct blood grouping from tooth material (dentine and pulp) significantly less likely ($p < 0,01$) than torn non-caries teeth. Similar tendency for teeth with caries dentine was weaker, but there was no significant difference in correct blood grouping torn teeth with caries dentine and caries pulpa.

The results confirm that enamel alone is unreliable material for ABO blood grouping. However, dentine, pulp and probably whole teeth without caries can be used for blood grouping with reasonable confidence. The material from a single tooth appears sufficient for blood grouping in such cases. The results also imply adverse effects of microbial contamination by caries and soil contact, which can limit the reliability of correct blood grouping from teeth in forensic applications. When the choice is possible, tooth material with as little caries as possible should be used.