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Clinical efficiency of one-step self-etch adhesives versus etch-and-rinse systems

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The rise of self-etch bonding agents

In recent years, the trend with bonding agents has been one of simplification, as evidenced by the development of one-bottle self-etch adhesives (SEA, 7th generation) that combine etching, priming and bonding in a single clinical step. The ultimate aim of these modifications was to reduce the number of steps needed, as well as the technique sensitivity of the process [6].

Nowadays, self-etching adhesives are recognised for their quick application and are considered to be more user-friendly than their multi-step counterparts [3]. However, -3-step etch-and-rinse systems (4th generation) are often still considered to be the gold standard in bonding.

Moreover, not all self-etch adhesive systems have the same composition, which causes differences in their effectiveness. One example of this is whether a system contains HEMA or not. In fact, HEMA (2-hydroxyethylmethacrylate) is a well-known allergenic substance, but is widely used in dental adhesives to reduce viscosity, enhance the bond strength to dentine and prevent phase separation. Therefore, the launch of HEMA-free adhesives (G-Bond and G-ænial Bond) has triggered considerable interest. At the same time, the clinical reliability of these new HEMA-free bonding systems has been challenged by some universities and is currently under debate.

Long-term clinical data

The problem today is that many new systems have no independent clinical

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