

*Letter to the Editor***Sedation in GI Endoscopy:  
safety for both the pregnant woman and fetus**

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**To the Editor:**

I carefully read the interesting review article by Manolaki et al., entitled "Sedation in Gastrointestinal Endoscopies", published in the issue vol. 22, number 2 (April-June 2009). The authors analyzed in detail the up to date trends in sedation during various gastrointestinal endoscopic procedures, different practices around the world about the use or not of sedation in endoscopy, pharmacologic characteristics of the most popular medications administered, the involvement of anaesthetists in the procedure, and the sedation in special groups like children and the elderly.

Nevertheless, I thought that authors might have also referred to the pregnant woman, presenting for gastrointestinal endoscopic procedure. The latter poses a variety of challenges regarding the indications and the safety of the procedure, the potential risks and benefit for the fetus and the variations in the applied anesthetic technique.

Due to potential risks for the fetus and the pregnant woman, indications for gastrointestinal endoscopy during pregnancy are restricted to upper gastrointestinal bleeding, dysphagia, uncontrolled nausea/vomiting, rectal bleeding, diarrhoea, choledocholithiasis or biliary pancreatitis.<sup>1</sup> Under these conditions, gastrointestinal endoscopy may be proven beneficial, considering the detrimental effects of uncontrolled bleeding to uterine perfusion or the consequences of ascending cholangitis to the fetus. Although endoscopy during pregnancy is considered as a rare procedure, it should be underlined that the strong recommendation for its application approximates to 19,000 women

every year only in America.<sup>2</sup> On the other hand, both endoscopic procedure and the sedation technique applied, may endanger fetus development, involving teratogenicity, due to sedative medications or radiation exposure during the procedure, hypoxemia or hypoperfusion resulting from maternal cardiorespiratory compromise, uterine hypoperfusion, caused by the vasoconstrictory action of epinephrine, or electrocution during electrocautery or electrocoagulation.

Safety of gastrointestinal endoscopy during pregnancy has been evaluated to an extent. Cappel et al conducted a detailed endoscopic study including 83 pregnant patients, underwent esophago-gastroduodenoscopy and concluded that the procedure is safe and did not induce labor or congenital malformations.<sup>3</sup> The same authors investigated the safety of sigmoidoscopy in 46 patients and showed a beneficial effect of the procedure in pregnant patients involving significant lower gastrointestinal bleeding and avoidance of preterm labor or congenital malformations.<sup>4</sup> However, due to rather limited and incomplete data regarding the safety of the procedure, fetal risk from endoscopy could not yet fully excluded. From this point of view, the work of Qureshi et al., endorsed by the American Society of Endoscopic Gastrointestinal Endoscopy, highlights the principles, the clinician should be complied to, when deciding to perform an endoscopy to a pregnant woman.<sup>5</sup>

According to recommendations, gastrointestinal endoscopy to pregnant woman should be performed when strongly indicated and be deferred whenever possible to the second trimester. Pregnant woman should be thoroughly informed about the nature of the procedure, the potential benefits or complications for her and the fetus, including risks arising from sedative drugs and make fully informed decision. Procedures should be performed without any sedation, if possible, thus avoiding both ventilatory impairment and subsequent hypoxemia and potential teratogen-

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ic effects of sedative medication. In cases when sedation is unavoidable, administration of anesthetic agents should be withheld to the minimum clinical effective dose. Radiation exposure during ERCP should be kept well below the danger level for teratogenicity.<sup>1</sup> Moreover, other recommendations include the maternal and fetal monitoring during the endoscopy, the placement of the patient to the lateral decubitus position to avoid vena caval and aortic compression by the gravid uterus and the application of bipolar current for electrocoagulation.<sup>5,6</sup>

Of additional concern is the anesthesia effect on the developing fetus or the potential to trigger preterm labour. Teratogenic effects of propofol and fentanyl have never been conclusively demonstrated in humans and these agents have a good track record for safety when used in reasonable doses during pregnancy. Although, an association between benzodiazepine use and oral cleft anomalies has been reported, later case-control studies failed to confirm this observation. Because the period of organogenesis is during the first trimester of pregnancy, it is commonly advised that all but truly emergent endoscopic procedures be postponed until later in pregnancy to avoid potential teratogenicity.<sup>7,8</sup> A meta analysis of studies on anaesthetic exposure during pregnancy concluded that a slight increased incidence of miscarriage is the only potential problem implicating general anesthesia in the first or second trimester of pregnancy.<sup>9</sup> Preterm labour is probably not related to anesthetic management alone, but to the underlying disease and the interventional procedure itself.<sup>7,8</sup>

Despite that most anesthetic and analgesic agents in current use traverse the placental barrier in varying degrees, it seems that their potential adverse fetal effects are minimal and transient and are well tolerated by the fetus if judiciously administered.

However, it must be stressed that all published recommendations are supported by limited amount of evidence, especially in the case of colonoscopy, and adherence to

these recommendations could not guarantee an uneventful pregnancy course and fetus development. Endoscopy should be always strongly indicated, the potential risks should be fully clarified to the pregnant woman, prior to giving informed consent and both the sedation and endoscopy should be performed by experts, minimizing thus the risk from malpractice.

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