·돞鵗쎝냄 Clinical research·

麋꺰믩뢺숀뫟죓돋齒髂鯀黎좧鶲돞鵗黨샻꺵黜죓

丁 强, 殷世武, 项廷森

【잯쒲】 뛄鶲 짡뀞麋꺰믩뢺숀뫟볂죓돋齒髂鯀黎좧黎믿鶲욲쓷꺵룩黜죓麂鰶。黛藕 麂 106 댂齒髂귁쟤涼꿽싕麋꺰믩뢺짮쬀죓돋 238 댂鴳,쀹갂돞鵗铞鰭,黨샻齒髂麋꺰믩뢺숀뫟볂鯀黎좧黎믿鶲욲쓷,쓙꺵鯀黎좧鶲鴦닯。뀞가 106 댂귁쟤볂곸짳鱠껈鶲鯀黎좧볌黎뫍、뻠쁡꺵麋싉럆뿇,쎜쬩鯀黎좧쬀싉쎯庸쓧뿧、쎯룽식、鮭쎯涼黎믿 3 댂,꿽쀳 1 댂。뀞든 뷩몤麋꺰믩뢺숀뫟볂죓돋죕쀪룟齒髂돋슬뫘맕,뗾뫓곓鯀黎좧녮뇎꿽黎믿,닖꿧꺵ᄆ�couldn't鋤짼껁볂꿽鎬용黜꺵곔닖鴦닖鯀黎좧。

【氤꼁鴿】 믩뢺숀뫟; 齒髂; 鯀黎좧; 돞鵗黨샻

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Complications of multipolar radiofrequency ablation in the treatment of advanced liver cancer: clinical analysis and prevention *DING Qiang, YIN Shi-wu, XIANG Ting-miao. Department of Vascular Intervention, the Affiliated Hefei Hospital of Anhui Medical University, Hefei, Anhui Province 230012, China*

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【Abstract】 Objective To summarize the causes of the complications related to multipolar radiofrequency ablation treatment for liver cancers, and to discuss the prevention countermeasure. **Methods** A total of 106 cases with hepatocellular carcinoma were enrolled in this study. Multipolar radiofrequency ablation treatment (238 times in total) was carried out for these patients. Through clinical observation, the causes of complications produced by multipolar radiofrequency ablation were analyzed. **Results** The most common postoperative complications were fever, pain, nausea and vomiting. Severe complications included cardiovascular accident, pneumothorax and bleeding, which occurred in 3 cases with one death. **Conclusion** Although the treatment of advanced liver cancer with multipolar radiofrequency ablation has been proven to be an effective method, various complications may occur. A full understanding of these complications and standardized manipulation technique will help prevent the occurrence of the complications and manage them as well once they occur.(J Intervent Radiol, 2014, 23: 343-345)

【Key words】 radiofrequency ablation; hepatocellular carcinoma; complication; clinical analysis

낲齒鷙듻궴돋붭묀볂(TACE)짼삯죓돋죕뿖룟齒髂鶲볜쎦죓돋黛藕쓲낲鱈삯ᄇ뛟뿧썴쟤鶲ᄆ黕涼벻[1-2],鶗쓀鴸 TACE 죓돋곸,죜돻꿻 30% ~ 50% 鶲뗫긂궺붿, 쓷鵀麋꺰믩뢺숀뫟볂(multipolar radiofrequency ablation,MRFA) 鱈삯엛쓀죓돋齒髂鶲엕슬뿟낻,鯧었 TACE 뎯곔 MRFA 쓲낲鱈삯죓돋齒髂鶲엕슬黛藕좳쓀[3],鶗엎엛싕 MRFA 죓돋곸,뇎뛡齡齒웥鵝늹齡鵖鶲뷵믐,鱖죇쓀슮鯀黎좧,쎜죝鶲뇎뛡삑꺵귁쟤믿뗉,쓷鵀,魷黨뫔벻、용黜꺵죓돋鯀黎좧냤엕죝쒯鶲돞鵝쓧쓪。헜쎝냄귝聡싙짡뀞샗뇋싕 MRFA 죓돋鯀黎좧鶲욲쓷꺵黜죓,鬻鶐뫬쇇。

1 鮭돔연黛藕

1.1 쓀髡짏돔

볚꺴샗뇋짙 2009 뛯 3 웆—2013 뛯 3 웆쓷齠죚욲쓷鮢뛡싕볚볂죓돋귱쟤鮢욽꿘볡볚볂죓돋鶲齒髂귁쟤 106 댂。룩죕뛕 76 댂,랳 30 댂,뛯돩 18 ~ 83 븷,룂냾뛯돩 58 븷。齡냢돞鵝鮭벼,鱠믾、쒯릨 CT、껜빲鷂高(AFP)껱鰋、MRI 껱鯸,쟴鹿黷곔 2011 뛯《욲黎싙齒髂쟴돋ᄆ黕》鶲齒髂鶲쟴鹿魔직[2]。106

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댂귁쟤죜돻鮭웳涼껋 128 齠, 죜돻좶낻 < 5 cm 쟤 43 댂, 좶낻 5 cm ~ 10 cm 쟤 69 댂, 좶낻 > 10 cm 쟤 16 댂。齒鶇뛡黨꺻 Child-Pugh A 꺻 84 댂, B 꺻 22 댂。106 댂귁쟤涼싕 MRFA 죓돋 238 댂鵁。鯧었뗅ᄚ鷓鯢죜돻슲짼짮(ECOG)룅黨, 106 댂귁쟤냾삯 0 ~ 2 黨。

1.2 黛黫

1.2.1 볂릵직魁 볂릵鱠ᄆ껱鯸, 쎯、뛷、黸鱠ᄆ, 쎯쒿믿궴、뜂쎯、뗧쓤、죜돻魔껌샴, X 쇤식뢱、싉鶤뾻鵁껱鯸, 볂릵鱠ᄆ뀀벸 12 h。

1.2.2 낲 B 鱠귷쟤 CT 쓦贓쇇싕 MRFA 믩뢺죓돋 쓌벾었믔겨듹鶻쓂뇋뇋껁엕쉯祓뷃 S-1500 싒。볂릵鱠ᄆ벾었顳魈듪黡遇 100 mg 꺻黡뺰뛠 0.05 mg 냋듹뽛즩좾뾹。鴨鵀鷛벾었 2%대麋놭쓷냛鯢듪짲, 벾었麋꺰믩뢺쟬鴨鵀꿽뫰죜돻죕싉鯢샀, 鵖놯뮦징鶤꺰, 뎱꿘믩뢺쓌, 꿽싕믩뢺숀뫟(RFA)죓돋。뫬죜돻꿔鵖, 뇎꿽싕麋鷛꺻麋鵁 RFA 죓돋。숀뫟쀋뫤곸, 싕麋鷛쟰鶺믩뢺좾쎯。髖鮭믩뢺쟰곸, 냛鯢髂쎾 5 min, 싕 B 鱠귷쟤 CT 껱鯸껱鰏죓돋슬가。

2 뀞가

麋꺰믩뢺죓돋주쒯鯑黎좧黎믿맮뇻뾸껋뫬쇇。

2.1 黎뫍

짲鱠꼀鶻鯑黎좧。魈짮 106 댂鮭댂涼鮭쇚黎뫍 99 댂, 黎믿듏 93.4%, 꺰믞봂鮭쇚齘뫍, 뻪샇 39.0℃ 쓙믔, 麋鯧었샇붲鯤욦꺻麋씀붲곸뻪샇꾹鷑。

2.2 뻠뾹

黎믿듏 71.7%(76/106), MRFA 곸귁쟤귦엕鹿웆싙鶻엗믔齋鯠볏, 씃뾹, 鯧었뻠뾹볘냺룅黨(VAS 룅黨)麋웟 6 黨쓙쇇, 뻠뾹麋뛡뫑볡。

2.3 麙싉럀뿇

黎믿듏 58.5%(62/106), MRFA 죓돋곸웬룟鮭쇚, 쒈髡웟볂곸鷂뻱鮭쇚, 맦쟤뻹쇚삯黤뷦곒齏럀, 죝쟤귁쟤뻹쇚뢺黔럀뿇, 럀뿇샴뇎삯삽뛟뫢샴、鶩좲、믺죆벳麑좽鰤뛟뫢샴。

2.4 齒웥뷵겫

黎믿듏 3.8%(4/106), MRFA 鴨鵀꺵믩뢺죓돋뷵믐젂鱠齒짮좼, 쓦룵齒鶇뛡뷵겫, 주쒯뻹쇚웟魰髒뷦즯髒떽밂齘, 鷁냾삹鱠갂 100 u/L。麙黎믿웟 1 죡뛟, 낲穱澽齐滲鶺쒮샴霤齒죓돋 2 죡곸딂딂귛饢。

2.5 鮭쎯

黎믿듏 0.94%(1/106), 죓돋곸믚즯쟰鶐鯠쀋몰쓦룵, 黵돔믔엕쎯쒿맦鹿믽鮭, 鮭쎯도웁 5 ml, 낲냆듹鶤즩몪髒께쎾뷝꺵냛鯢髂쎾鶧霤볝죓돋곸삹웞볘鮭쎯。

2.6 싉쎯庸쓧뿧

黎믿듏 0.94%(1/106), 뷅뿻。엎엟蔘싉黜믩쓦룵싉듏쇗꾹, 냆듹뽛즩髆쁡뢼생슬쓦룵。

2.7 쎯룽식

黎믿 1 댂 0.94%(1/106), 죜돻샀죈샀엟蓮鶛, 鴨鵀벶낲갂다蓮꿌쓦룵, 엗鰳식릤엕믞도식릤긂쒿。

2.8 鶤꺰髡뢩黳짋믐

黎믿 1 댂 0.94%(1/106), 삯릤鋒鹿짋믐, 엎엟귁쟤鵖겾돡닱, 鶤꺰髡연뢩黳꿘鴦鯠뎉쓦룵。믚믐鴦벾었 1∶1 000 魈웾훪鏭맪솹긐, 뛟鰛벾었黕별돛, 뿧鰛벾었생냿뮹鯡髽웾。

3 뻛든

麋꺰믩뢺죓돋볌뀁뛯늹싇싐룵鶒뀦뫰죓돋黛黫쵋쓀, 룩죓돋쓕낲鵱껜징쇂髂, 黺髂鵁돱엷黎쟶驢齒髂[4], 주쒯쀹갂鶤꺰쟰黎鮭齠뢺믩뢺鯖, 쓦룵짮좼뛟鶒닰짘쟶鷇곧뚫鯤, 鰔믿냛鯢齠샹, 샹鹿뇎駿 60 ~ 120℃[5]。짼삯쓀죛맛솳싙죓돋黛黫, 룩鯑黎좧麙연鴨鵀쵋꿘뷵믐、죓돋갂鱺죕鶒齠샹쓦룵齒웥뷵믐、쓙꺵죓돋곸죜돻궺뷅뷾쓦룵鶒黜얫[6]。麂엟쵋낻슦엟 3 cm 鶒죜돻, 鯧었 RFA 죓돋鵁믐슦、鯑黎좧믞、뀁룟돋슬몼맕, 슬가엊엟뿧뇋볛볹맕鮕볹[7-8]。鷇鶼齒뛟죜돻생욻鴦즯쓋웳귁쟤싕 MRFA 죓돋 5 뛯믿鵑듏뇎駿 48.0%, AFP 붲룂、齒鶇뛡꿔볹릵엕뗄쇙곈즯[9], 꺹벾齒鶇뛡뉭魈꿔鯽, 뫙뇎쓙벾었 MRFA 뀉싕죓돋[10]。붲짊믩뢺죓돋쓌룴싙뛡鶒齋믋, 짲싙쓀鶒鶒鶤꺰쟰麙삯饢곔鶤꺰쟰, 뫬꺴볾닩뜂鶤꺰쟰、붰꺰쎛붲웻맄鶤꺰쟰鵁。숀뫟鶒뻪긂엎욲닕鶒웁 1 cm³ 늬鵑鯖(149.50 ± 36.24)cm³, 숀뫟鶒뗫긂鵑鵑웻께[11]。

엕색쇜鬻鶌, 싕 MRFA 죓돋죕뿲룟齒髂鶒鮭뛡듏삯 0.038%[12], 쎜죝鯑黎좧黎믿듏 3.54%。魈짮 106 댂죕, 엕쓙쇇鯑黎좧:鮭겾、黎뫍、뻠뾹、麙싉럀뿇、鶤꺰髡뢩黳짋믐, 쎜죝鯑黎좧뫬:鮭쎯、싉쎯庸쓧뿧、쎯룽식、齒鶇뛡뷵겫鵁。

① 黎뫍:귁쟤웟꿘볡 RFA 죓돋벶鮭쇚鵑겾돡닱, 짙냺黎뫍, 鷁鵀벶쓷 RFA 죓돋벶鰔믿鶒뫍도뷫쎯돼꺵겾쒿췌짤, 귁쟤뻪샇鯑鯠밂齘, 쒈髡웟볹곸鷂뿲귛鷗 1、2 뻱놯볁鮭쇚黎뫍, 鱱鶟뫍, 麙봂웟 38.5℃쓙쇇, 쒈髡鯠십쒯뻝뼳鴦닲[13]。② 뻠뾹:麙꺰믩뢺죓돋벶귁쟤뇎주뷤엕齒맽뻠뾹, 뻝魑뇄뀁齒髽뚩鶒죜돻鮭웳,RFA 벶鵀꺩齒髽뚩, 쓷鵀麂엟샀엟

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魋욺싙鶒齒죜돻엍룩십쒯웟볂릵벾었좿뽉쒮。볂곸鮭쇚鶒齒맽씃뽉귷쟤쟓뽉，쒈髡뇎뛒볡，魎쒯벷뇎벾었쟷뽉쒮샴。③ 麙싉럀뿇：麙엎엟齒웥냛鯢궺쀑곸샴죏색볚，齒鶤뛡쒈갂싙뷵겫쓦룵，쓷鵀볂곸뀀벸 6 ~ 8 h 뫙볌魎쒯鶒，볂곸뇎벾었髐鶾쀏맲、껜쐃듍룶髏鷆쟷뿇，헿뿕늲튃鷆쓛뷦翮궩삽齷뚩。④ 鷅꺰髡뷵믐：엎엟 RFA 벷귁쟤鮭쇚鵖겾，쓦룵鷅꺰髡연랭黳鮭꿘鴦鯠뎉，냛鯢랭黳뻑믐，鱷鹿쒈髡웟릸鋒鹿，쒈髡뇎魏뗧。⑤ 鮭쎯：쒈髡볌웟볛볂벷꺵볂곸鹿벷껩뛟鮭쇚鶒쎜죝鯀黎좧，髪늭齒웥髪뚩꺵벺죏붿돖鮭쎯、쟰鶐鮭쎯、죜돻룋돖鷆[14]，黎믿듏삯 0.46% ~ 1.6%，鮋붿듏읍삯 0.05% ~ 0.09%。욲쓷엕：鴨鵀벷齒웥쓋鶭，쓦룵齒髪뚩붿돖믐；齒髏귁쟤뜂쎯鶤뛡쟔髊쒷볌쓦룵볂죕꺵볂곸鮭쎯鶒욲쓷；魆짮鮭댂鮭쇚鶒 1 댂鮭쎯鮋댂쓷쟰鶐삹鈦黨믚짋쓦룵。⑥ 싥쎯庳쓧뿧：鵀꺩蘇뛗귷쟤蘇鶐곸쓦룵싥듏껺딂，鮭쇚蘇싥黳믩，鷅죇싥쎯庳쓧뿧鶒黎믿。⑦ 쎯룽식：싕 MRFA 죓돋싓鰼쎯룽식鯀鯠믞꼀，주쒯볌엎엟鴨鵀벷뗀엕魏놯다蓮꿌，鴨鵀쟰꿽뫰식맀귷쟤黺鯢쓦룵，쓷鵀믩뢺죓돋벷얫징솽鈅鰭，魏뗧鴨鵀쟰꿽뫰식맀。⑧ 齒鶤뛡뷵겫。쓷鵀웟 MRFA 죓돋齒髏벷，뻝魑볌슦齒髏，鷅꺰쟰魎싰쀧몰鵖놯，쓙뗧쓦룵죜돻죡사젂鱠齒웥짮좴鶒齒솽髪궺뷅， 齒鶤뛡뷵믐。

齒웥죜돻鶒麙꺰믩뢺죓돋鶒鯀黎좧죝鷛웟엟용黜，볂릵얫鰼黨룅僥귁쟤鶒쒈髡맲뇻，싥黺鶤뛡꺵뛊쎯鶤뛡，鮭쇚鯀黎좧얫꺵벷엕슬鴦닾，뷫짊麙꺰믩뢺죓돋鶒ᄁᆞ默놯잾，B 鱠귷쟤 CT 麂엟鮭웳鶴삯鶒직몼싙鶒뻦齞，낲쑺鶒긂닄，쓙꺵볂죕볂곸鯀黎좧鶒곔닾鴦닾，쏔죝鯀黎좧죵鯡껺믞，뻦齞麙꺰믩뢺죓돋죕쀪룟齒髏鶒髓몰싙， 꾹鷑볛볂顓쇚鶒黎믿。

[鯪 뇁 색 쇜]

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